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THE WAR AND THE WORLD'S TRADE

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Since the outbreak of the European war involving, among others, the two leading commercial nations as opponents, international trade has experienced the greatest disruption the world has ever known. Although numerous causes for this disastrous commercial disruption might properly be cited, two, at least, are fundamental. In the first place, the present war is, in many respects, the greatest and most crucial in history. Consequently, it is calculated to disturb the commercial relations of nations, especially of the belligerents, to their very foundations. In the second place, the world's commerce to-day is much larger than it was at the outbreak of any previous war, and the countries of the world are now more closely knit together into one vast trading community than ever before. Hence, even a minor disarrangement of the machinery of trade, or interference with the normal demand and supply of goods is bound to be far-reaching in its influence; while such major disruptions as the practical obliteration of the foreign commerce of the second largest trader in the world—Germany—and the actual reduction and threatened destruction of that of many other nations are matters which can result only in dire consequences.

In an attempt to discuss some of the effects of the war upon the world's commerce, the first-mentioned reason for the present commercial disarrangement requires no comment. On the other hand, however, it will lend perspective to our later discussion to present, at the outset, some of the leading facts concerning the world's enormous trade as it existed under conditions of peace, and to outline the causes for its recent rapid expansion.

The rapidity of growth of the world's international commerce is nothing short of marvelous. Within the last two decades it has

more than doubled, having reached, before the outbreak of the war, the enormous value of forty billion dollars annually. Moreover, any one of the three leading commercial nations—the United Kingdom, Germany, and the United States—has, in times of peace, a foreign trade greater than that of the whole world only sixty years ago.

This enormous expansion is the result of an intricate combination of factors. The introduction of machinery and the evolution of the factory system paved the way for an almost indefinite increase of saleable commodities at a diminishing per unit cost of production. The remarkable development of transportation systems, both by land and sea, especially during the latter half of the nineteenth century, made possible the cheap and rapid movement of goods from points of production to the world's markets. The recent progress of scientific agriculture and of scientific method in industrial management have increased competition and called for the best adjustment of industries to environmental conditions. This has led to regional specialization of production within the boundaries of individual countries, and, in some cases, to national specialization of economic effort. Here is the basis for extensive trade. Furthermore, innumerable devices in the nature of trade-promoting machinery (such as banking and credit facilities, consular and diplomatic services, commercial agents and attachés, etc.) have combined to consolidate the various countries of the world into one vast trading community, with business transactions between the individual units which have reached enormous proportions.

For the year 1913—the last whose statistics are normal—the total value of the world's foreign commerce was, in round numbers, $40,000,000,000, divided nearly equally between exports and imports. About 60 per cent. of the exports, to the value of about $12,000,000,000, were from European countries. Furthermore, Europe is to be credited with 70 per cent., or about $14,000,000,000 worth of the world's imports. More specifically, a brief analysis of the foreign trade of the principal warring nations of Europe in 1913 reveals the following:

	Imports	*Exports*
United Kingdom	$3,742,000,000	$3,090,000,000
France	1,642,000,000	1,326,000,000
Russia	629,000,000	732,000,000
Belgium	884,000,000	690,000,000
Total	6,897,000,000	5,838,000,000
Germany	2,546,000,000	2,399,000,000
Austria	689,000,000	561,000,000
Total	3,235,000,000	2,960,000,000
Grand total	$10,132,000,000	$8,798,000,000

From this table it appears that the principal warring nations of Europe have, ordinarily, about one-half of the world's foreign commerce, and that the commerce of the Allies is more than double that of Germany and Austria combined. If space permitted, figures also could be given which would show the highly interlocking character of the foreign commerce of the belligerents. To cite but two examples, Germany is, in times of peace, the largest European customer of England, while the latter is the principal market for German exports.

Once war had been declared, it was inevitable that this enormous volume of trade of the countries involved in actual warfare would be disorganized, and that, inasmuch as the whole world is now so closely knit together into one vast trading community, there also would be a serious disruption of the trade of neutral nations. As is well known, numerous prophecies were made regarding the character of business disturbances which, it was believed, were imminent. But, in the light of actual happenings of the past months, it is evident that a large percentage of these predictions were wide of the mark. Without entering into an exhaustive analysis, a few instances will serve to illustrate this point.[1]

While it may be true that, had the New York Stock Exchange remained open during the early days of the war, there would have been enormous sales of the $6,000,000,000 of our securities said to be held in Europe[2], the fact remains that, since its reopening, there has been no glutting of the market with such securities, as was predicted. In fact, the management of the Exchange soon found it unnecessary to maintain still longer the safeguards which were resorted to at the reopening. With reference to the anticipated drainage of gold from this country, not only was the export of gold actually less than the sum which had been provided for this purpose, but, within a few months the stream was reversed and we found ourselves receiving gold which Europe reluctantly was obliged to send us. According to *Commerce Reports*, April 23, 1915, the outflow of gold was checked in December, and, from January 1 to April 1, there was a net inward movement totaling upwards of $42,000,000,000. Again, instead of the rate of interest the world over mounting to almost a prohibitive figure, as some had feared, no greater change has been noted than would have passed unnoticed had there been

[1] See *The Annalist*, April 5, 1915, which contains a summary of these predictions and comments thereon.

[2] See also *The Economic World*, July 3, 1915, which contains an article on "European Holdings of American Securities." Here it is estimated that the par value of foreign holdings of American securities at the end of April, 1915, was $3,408,401,342.

peace throughout the world. The anticipated trouble respecting the marketing of our bumper cotton crop has been, in some degree, exaggerated. In spite of delay in marketing, it ultimately moved to market at almost a record pace, and at a price several cents higher than originally had been expected. Notwithstanding these large movements, it should be stated in fairness to those whose predictions are under discussion, that the total cotton exports for the eight months ending with February, 1915, were only fifty per cent. of those for the corresponding period of the preceding year.

Various prophecies or expectations with reference to the rôle the United States, the foremost neutral trader, would play in the world of international commerce have proven to have been wide of the mark. Early in August, 1914, the immensity of the world's trade disturbance seemed to have brought into existence in the American business world "a national conviction that the world of trade was ours." Some weeks later, however, a representative business journal of this country stated: "Now there appears to have come a mental condition which is tending to produce excessive caution and almost a national doubt as to whether we can enter the world's markets successfully." During the first month of the war, it seemed to be rather widely believed that there was an excellent prospect of extending our export trade by supplying certain neutral markets hitherto largely monopolized by the European belligerents. It was expected that two fruitful fields for such operations were South America and Asia. Of course, it may be too soon to test the validity of these predictions and, perhaps, it should not be expected, as yet, that the anticipated results in these fields should be realized. The fact is, however, that, as will soon be shown by a statistical analysis of recent trade conditions, the two continents just mentioned have bought from us, during the ten months ending with April, 1915, less than they did for the corresponding period a year earlier. Again, soon after hostilities commenced, it was predicted that "one of the first effects of the war would be the curtailment of the trade of the United States with the belligerent countries and those adjoining, and an increase in the trade between the United States and neutral countries in other sections of the world." As a matter of fact, the reverse was the case.

Let us now proceed to a survey of some of the leading features of the world's international trade as they actually existed some nine months after the outbreak of hostilities, from the standpoint of our relations with other parts of the world, giving attention at first to the export trade.

For the ten months ending with April, 1915, our total exports of merchandise, as reported by the Bureau of Foreign and Domestic Commerce, amounted, in round numbers, to $2,226,000,000 as compared with $2,046,000,000 for the corresponding period a year ago. In total value, there is a substantial increase; and, as will appear later, there has been a marked change in the composition of our foreign shipments. The distribution of our exports by continents was as follows:

	Ten months ended with April	
Exports to—	*1914*	*1915*
Europe	$1,301,737,077	$1,588,805,031
North America	443,859,045	388,608,871
South America	106,762,122	73,603,809
Asia	99,722,229	91,259,248
Oceania	70,001,564	60,803,573
Africa	23,692,448	22,743,454
Total	2,045,774,485	2,225,823,986

From these figures it is apparent that, as yet, South America and Asia have not proved to be fruitful fields in our export trading operations, as had been expected. On the contrary, we have failed to hold our own in these markets; and this is due, in all probability, to the fact that exceptional opportunities were offering for certain lines of exports to some of the belligerents and their immediate neighbors. Furthermore, it may be seen that, in the case of every continent excepting Europe, our exports were actually less than they were a year ago. On the other hand, contrary to expectations, our shipments to Europe—the scene of the conflict—have been greater during the last ten months by about $287,000,000 than they were for the corresponding months of 1913-1914.

Moreover, with some of the warring nations, substantial increases are to be found. For example, according to an analysis made by the Bureau of Foreign and Domestic Commerce, published in *Commerce Reports* for April 24, 1915, the British Empire was then the market for 50 per cent. of the total exports of the United States, as compared with 45 per cent. a year earlier. France, including her colonies, has, since the war began, taken second place from Germany as a market for our products. This is due in part to the activities of the Allies in preventing the entry of goods into Germany, and in part to the actual increase in the value of our shipments to France, which have risen from $143,000,000 for the ten months ended April, 1914, to $277,000,000 for the corresponding months a year later. But it is with some of the neutral countries bordering upon the

nations which are engaged in war that we have made the greatest gains in marketing our goods. For example, following the two periods compared above, the increase in our exports to Denmark has been from $13,000,000 to $71,000,000—an advance of over 500 per cent. With Sweden, an almost identical proportionate increase is shown, the figures being $12,000,000 and $72,000,000. Moreover, the Netherlands and Switzerland show results somewhat similar, their purchases for the respective periods under consideration being $93,000,000 and $123,000,000 for the Netherlands, and $837,000 and $2,257,000 for Switzerland. As might be expected, the country which, according to trade statistics, has received a relatively small percentage of her normal share of our exports is Germany, whose purchases decreased from $309,000,000 to $29,000,000 for the two periods which we have been comparing.

There remains still another feature of our export trade which should be considered, namely, the changes in the relative values of certain general classes of commodities shipped abroad as compared with conditions which prevailed before the outbreak of the war. First of all, the general situation is shown by the following official table extracted from the *Monthly Summary of Commerce and Finance* for April, 1915:

EXPORTS FOR TEN MONTHS ENDED WITH APRIL

Groups	*1914*		*1915*	
	Dollars	*Per cent.*	*Dollars*	*Per cent.*
Crude materials for use in manufacturing	722,056,256	35.78	434,620,120	19.91
Foodstuffs in crude condition, and food animals	116,330,048	5.76	442,357,414	20.27
Foodstuffs partly or wholly manufactured	252,653,062	12.52	365,544,753	16.75
Manufactures for further use in manufacturing	312,500,818	15.49	280,343,971	12.84
Manufactures ready for consumption	608,305,040	30.14	600,711,511	27.52
Miscellaneous	6,240,623	.31	59,119,423	2.71
Total domestic exports	2,018,085,847	100.00	2,182,697,192	100.00
Foreign merchandise exported	27,688,638		43,126,794	
Total exports	2,045,774,485		2,225,823,986	

From the above it appears that exports of crude materials for use in manufacturing have been reduced nearly 50 per cent, while foodstuffs in crude condition and food animals have risen close on

to 400 per cent. There also has been a rise of 33 per cent. in the export of foodstuffs wholly or partly manufactured. Furthermore, it should be pointed out that, notwithstanding the so-called "war orders" of manufactured goods, the total outward movement of all kinds of manufactures other than foodstuffs was less for the ten months ending in April, 1915, than during the corresponding period a year earlier. The only other striking change which is shown in this table is a very marked rise in the shipments of unclassified commodities. Horses and mules are responsible, in large part, for this condition, inasmuch as they are incapable of classification in any of the official schedules.

An analysis of the data from which the above table was compiled reveals some interesting features. In general, those things which are indispensable for the equipment and maintenance of armies show marked increases in our foreign shipments. Following here the two periods compared in the table, it is found that the value of horses exported has increased from $2,918,000 to $47,784,000; of mules, from $615,000 to $7,478,000; of harnesses and saddles, from $613,000 to $14,900,000; of explosives, from $5,471,000 to $21,163,000. Before the outbreak of the war, we sent abroad, on the average, about $100,000 worth of commercial automobiles per month, whereas, at the present time, our monthly sales total over $5,000,000. Other articles chosen at random showing conspicuous increases are wheat and flour, leather, woolen manufactures, zinc, and refined sugar. The statistical evidence is conclusive that American producers either of foodstuffs or of those manufactures which are required in modern warfare are reaping a harvest from the present destructive operations of the belligerents.

On the other hand, there are many commodities for which the foreign demand has been checked to a marked degree. The exports of lumber and wood manufactures, of passenger automobiles, and of copper and its manufactures have been substantially reduced. Copper is, of course, a commodity which is in demand for purposes of modern warfare, but the decline in our foreign shipments of this metal is to be attributed mainly to the inability to market it in Germany. The present demand for agricultural implements is much less than the normal demand. Iron and steel manufactures, electrical machinery, photographic goods, sewing-machines, and novelties in general are other typical instances of commodities whose present foreign sales are much below those of a year or two ago. In a word, the whole situation respecting our export trade can best be expressed by the words of a recent writer on this subject who stated

that the export figures "show literally that Europe has dropped the plow to take up the sword."

Turning now to a consideration of our import trade, a different situation, in many respects, is presented than was found in the case of our exports. For the ten months ended in April last, our total imports of merchandise amounted, in round numbers, to $1,374,000,000 as compared with $1,572,000,000 for the corresponding period a year earlier. This is a substantial decrease, and notably is this true with respect to Europe—the continent to which our volume of exports is now swelling. In the case of other continents there are gains, in some cases, and losses in others which, on the whole, tend to balance each other, leaving the net loss in imports referable, in large part, to the shrinkage in purchases of European goods, as the following table shows:

	Ten months ended with April	
Imports from—	*1914*	*1915*
Europe	$756,038,401	$527,466,270
North America	343,630,432	372,765,578
South America	185,446,075	216,194,667
Asia	238,648,600	201,355,226
Oceania	33,093,606	38,895,256
Africa	15,257,578	17,512,752
Total	$1,572,114,692	$1,374,189,749

Here it is seen that South America, in spite of our failure to hold our own in her markets, to say nothing of further extending our export trade thither, as had been predicted, has succeeded in increasing her shipments to us, during the last ten months. Asia, on the other hand, has sent us a somewhat smaller total of exports than we received during the corresponding period a year earlier.

The figures showing imports by countries reveal some interesting features. For example, in the month of January last our imports from Germany and Austria were only 25 per cent. less than they were in the corresponding month a year earlier; whereas among our principal decreases in imports were those from the United Kingdom and France. In the case of all four countries, undoubtedly the production of commodities for export had been greatly curtailed, due to the drawing off of industrial workers into the armies, and to the abnormal proportional production of supplies of all kinds indispensable for modern warfare. But it certainly was never expected that five months after the outbreak of hostilities the imports from Germany and Austria should be more normal in value than those of England and France, who controlled the seas. The situation

regarding imports, however, can the better be grasped by comparing the official figures by principal countries not for a single month but for the two periods of ten months, ending in April, 1914 and 1915, as follows:

Principal countries	*Ten months ended with April* 1914	1915
Austria-Hungary	$17,136,000	$9,118,000
Belgium	34,766,000	10,053,000
France	124,315,000	66,413,000
Germany	160,431,000	86,372,000
Italy	46,516,000	45,181,000
Netherlands	30,222,000	27,461,000
Norway	7,707,000	9,746,000
Russia in Europe	17,855,000	2,318,000
Sweden	9,537,000	10,288,000
United Kingdom	243,715,000	211,451,000
Canada	131,882,000	133,115,000
Mexico	77,481,000	61,039,000
Cuba	99,677,000	138,534,000
Argentina	36,163,000	61,088,000
Brazil	88,028,000	84,396,000
China	32,543,000	30,727,000
British India	60,882,000	42,169,000
Japan	90,663,000	83,414,000
Australia	14,079,000	14,557,000

From the above it appears that within the ten months' period indicated, of which all but one month (July) had elapsed since the outbreak of the war, each of the nations of Europe engaged in fighting sent us vastly less merchandise than for the corresponding period a year earlier. On the other hand, our purchases from Canada, the Netherlands, Australia, Brazil and China, respectively, were practically identical in value for the two periods.

The present trend of the world's trade, considering the United States as the center, has now been shown in considerable detail. The question as to whether such tendencies as have been indicated will continue for any length of time is clouded in uncertainty. Nor is it possible to determine, at present, the lines upon which the trade of the world will eventually be reorganized after hostilities cease. For the present, however, it is reasonable to expect that abnormal and unsettled conditions in international trade will continue until the end of the war. Great uncertainty is attendant upon all trade with Europe, especially since the blockade of Germany by the British fleet, and the activities of the Germans in attempting to undermine British commerce through the agency of submarines.

But, in spite of such conditions existent, the volume of trade goes to and fro in response to a pressing demand in Europe for foodstuffs, military supplies and equipment, and raw materials for manufacturing military supplies. Furthermore, it is difficult to foresee any appreciable diminution in demand for such merchandise until the arrival of that unknown day when peace will be declared.

THE SLIGHT EFFECT OF THE WAR ON UNITED STATES TOTAL COMMERCE

By MARK JEFFERSON

The domestic exports of the United States for the ten months ended with April, 1915,—roughly the period of duration of the European war—were six per cent. larger than for the same ten months of 1913 and 1914, averaged; and the imports to the United States for the ten months of the war were nearly twelve per cent. smaller than for the same ten months of 1913 and 1914, averaged. The six per cent. amount to 135 million dollars, the twelve to 186 million dollars. Imports and exports together are one per cent. less than for the average ten months of 1913 and 1914, this one per cent. amounting to but 36 million dollars. Here are the figures tabulated:

U. S. Trade, in Millions of Dollars, for Ten Months Ended with April

	Domestic Exports	Imports	Total[1]
1913	2077	1548	3656
1914	2018	1572	3618
1915	2183	1374	3600

We may say that the total of our commerce has been little affected, but there has been some change in the relation of imports to exports.

It is more noticeable that the values of individual domestic exports have suffered changes of which the changes in the totals give no idea. Thus the six per cent. increase in our total domestic exports includes an increased exportation of wheat and wheat flour to the amount of 250 million dollars and a diminished exportation

[1] Includes foreign goods exported. All figures are from the *Monthly Summary of the Foreign Commerce of the United States* for April, 1915.

of raw cotton to the amount of 200 million dollars. Similarly the exports of horses have increased by 45 million dollars and those of copper have diminished by 40 millions, tobacco by 30 millions. There are thirteen items of domestic exports, all of which have amounted to as much as ten million dollars in one of the three ten-month periods, that have undergone striking changes in amount for the period of the war. The following table shows the amounts for the three periods:

U. S. Domestic Exports, in Millions of Dollars, for Ten Months Ended with April

Losses	*1913*	*1914*	*1915*
Agricultural implements	34	28	8
Copper	115	122	78
Furs and skins	17	14	3
Structural iron and steel	13	11	5
Naval stores	15	9	5
Tobacco	51	48	20
Raw cotton	505	567	330
Gains			
Horses	3	3	48
Wheat	76	74	297
Wheat flour	45	46	79
Automobiles	22	23	33
Leather and skins	7	6	18
Bacon	22	23	37

The losses amount to about 318 millions, the gains to 336, with only moderate effect on the totals exported. It is evident, therefore, that the war has a much greater effect on the distribution of trade totals among the component items than it has on the totals themselves.

THE NAVAJO COUNTRY*

By HERBERT E. GREGORY
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Part II. The People

Kisani and Navajo

The discovery of native tribes in northern Arizona dates from 1540, when Don Pedro de Tovar and Juan de Padilla, cavalier and priest, were guided by men from Zuni to the "Province of Tusayan." They found there a "very intelligent people" living in villages and successfully carrying on agriculture. No account is given of another race, and not until 1629 is the Navajo tribe specifically mentioned in the Spanish chronicles. At the present time the country between Rio Puerco and Rio San Juan is in the hands of the Navajos; but included with the Navajo lands is an area set aside for the Hopis, the modern representatives of the ancient race whose long occupation is attested by innumerable ruins. That the modern pueblos and the ruined dwellings, ancient terraced fields, and abandoned burial grounds are the work of a single composite race is not questioned by Hopi or Navajo, and, following the Navajo custom, I find myself using the term "Kisani" for the people whose occupation of this region has been uninterrupted for probably a thousand years.

Hopi and Navajo

Though living within the same area and forced by proximity to intermingle to a slight degree, the Hopis and Navajos maintain their independence and as tribes are strongly contrasted in culture and manner of life.

The Hopis are small of stature, but agile and wiry and built to endure hardship; they mature early and die young. In mental traits they have no superior among Indian tribes; they are excessively religious and their social code is elaborate and complex. They are peaceful, quiet, industrious and home-loving, not, it appears to me, as the result of superior wisdom, but rather in consequence of centuries of struggle with natural phenomena. Their eyes are

*Concluded from August *Bulletin*, pp. 561-577. For location of geographical features, consult map there published on p 562. Figures 24, 25, 28 and 29 were drawn by Miss Gladys M. Wrigley, Research Assistant on the Society's staff.

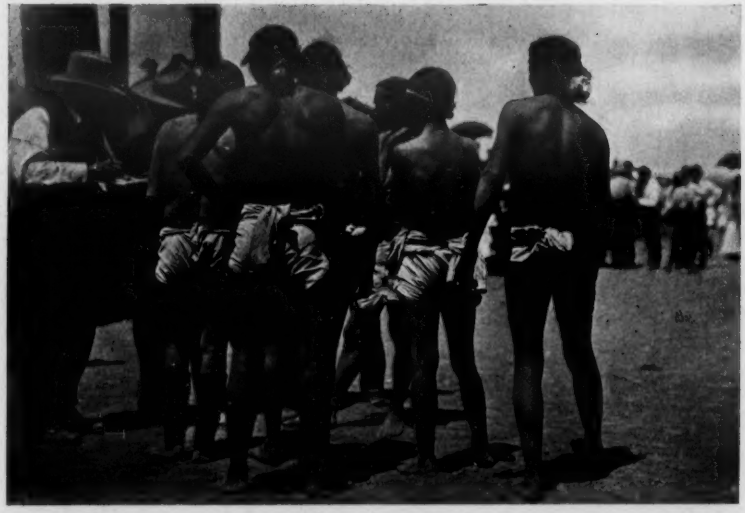
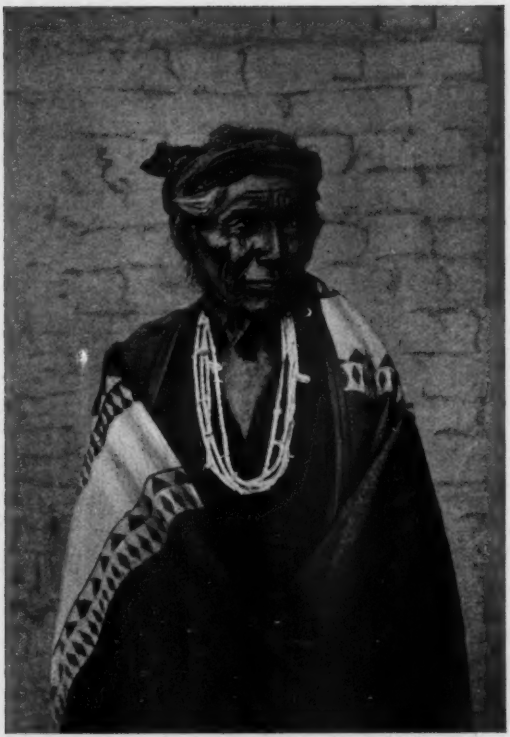


FIG. 19—Navajos between the ages of 18 and 30 prepared for a foot race, a sport of which they are particularly fond. Note athletic build and method of protecting the hair from the wind.



Simeon Schwemberger, photo.

FIG. 20—Dinesosi, a Navajo war chief, age about 75. Navajo leaders are chosen for their intellectual capacity rather than for their physical prowess.

A. H. Townsend, photo.

FIG. 21—Ancient dwelling of the Kisani race. A cliff house of the abandoned village of Betatakin, in a branch of Tsegi Canyon.

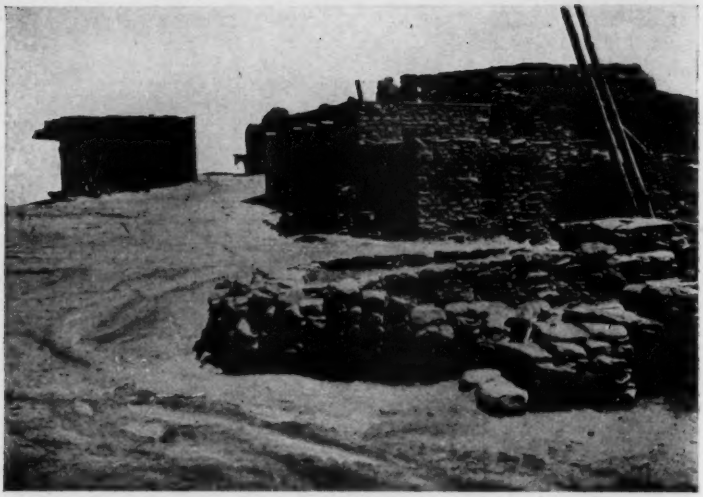


FIG. 22.

FIG. 23.

FIG. 22—Modern house of the Kisani race; a Hopi dwelling in the village of Oraibi.

FIG. 23—Navajo summer and winter hogans. The summer house is a temporary structure built of brush over a frame of poles. The winter hogan has a strongly built frame of beams set in forked supports and is plastered over with adobe. In this view the summer and winter houses are together; usually they are far apart, since grazing lands and cornfields are in general widely separated. A hogan in which a death has occurred is "chinde," *i. e.*, a home of evil spirits, and may not be again utilized. Abandoned hogans are therefore common in the Navajo country.

turned toward the past; new conditions are met with reluctance. They have successfully resisted Christianity since the days of Coronado, and in other respects their response to the influence of missionary and Government official is negligible. Their one request is to be let alone; to spend the dying days of their race in accordance with the revered customs of their ancestors.

The Navajo, on the other hand, is tall, lithe, active, and enjoys out-of-door work and manly sports. He is independent but helpful and genial. There is nothing of the stoic in his mental make-up. He is intellectually alert and overcrowds the school accommodations. He belongs to the vigorous Athabascan stock whose branches extend from the Arctic Circle to central New Mexico. Navajo family life is clean and the position of women is probably higher than in any other uncivilized tribe. His social and political organization is based on the theory that leadership belongs by right to the wise and far-seeing. As a race the Navajos are increasing in numbers and in physical and mental strength. They look toward the future with hope (Figs. 19 and 20).

The Hopi, like his ancestors of the Kisani race, is sedentary, a village dweller and agriculturist. Through centuries of experiment he has become surprisingly skillful in selecting fields and caring for crops in a region where the white man fails. During the growing season his days are spent in working ground one, five, or even ten miles from his pueblo, to which he may return at night. Corn, beans, melons, supplemented by piñon nuts and the flesh of small desert animals constitute his food supply; and that his menu is not modern except for mutton is indicated by the presence of corn cobs, beans, and bones of various animals in ancient cliff houses. Both dry farming and flood irrigation are practiced, and that his mind is intent on water conservation is shown by the organization of clans and by the elaborate ceremonies devised to enlist the cooperation of unseen powers which are believed to control the rainfall. Endless toil and endless prayer, both designed to insure water for his corn crop, constitute the life of the Hopi. To offset failure and the ill will of the gods, Kisani houses, both ancient and modern, include a granary in which two to four years' supply of corn is stored for famine years (Figs. 21 and 22).

In marked contrast with the Hopi the Navajo is a nomad, a stockman adjusted to an arid climate. His normal place is on horseback; a walking Navajo is a rare sight. His hogan is a temporary structure of poles and mud or of brush (Fig. 23); his life consists in following his flocks from place to place where water and forage

are available. The Navajos also practice agriculture to a limited extent and camp during the growing season near the fields selected for planting. Farming, however, is a secondary consideration, and tending of sheep and weaving of blankets are the chief occupations of men, women and children of the tribe.

TABLE I—INDIAN AND WHITE POPULATION OF THE NAVAJO-HOPI RESERVATION, 1912

Agency	Indian Population									White Population			
	Navajo	Hopis	Pueblos	Full blood	% afflicted with trachoma	% afflicted with tuberculosis	Wear modern attire	Speak English language		Officials	Traders	Missionaries	
Navajo Extension	1,200	...	...	1,200	20.83	4.08	800	75		15	30	14	
Navajo	10,000	...	...	9,990	15.00	11.00	2,500	750		65	55	20	
Pueblo Bonito	2,685	...	...	2,680	53.32	1.71	800	300		16*	14*	2	
San Juan	8,000	...	...	8,000	22.00	25.00	1,000	200		60	55	7	
Western Navajo	6,131	204	200	6,535	6.54	8.97	200	200		25	20	18	
Hopi	2,000	2,068	...	4,064	61.45	4.57	1,500	1,500		66	17	13	
Totals	30,016	2,272	200	32,469	18.39	12.36	6,800	3,025		247	191	88	
Total Indian population	32,488									531 Total white population.			

*Estimated by writer.

POPULATION AND ECONOMIC CONDITIONS

The accompanying tables of population, agriculture and stock raising, arranged with reference to the six administrative subdivisions of the Navajo country, present the significant features in the life of the present inhabitants. The small white population is wit-

ness of the fact that these native races, particularly the Navajos, have attracted the attention of the Government only during recent years (Table I). As yet the interchange of ideas between Indian and white involves the use of an interpreter. The absence of a white population and the inharmonious relations between Navajo

TABLE II—AGRICULTURE ON THE NAVAJO-HOPI RESERVATION, 1912

Agency	Agricultural Lands								Grazing lands	Unfit for any purpose	Total
	Irrigated	Irrigable but not irrigated	Irrigation not necessary	Miles of ditches	Lands cultivated by Indians	Number of farms	Average size of farm	Value of crops raised			
	acres	acres	acres		acres		acres		acres	acres	acres
Navajo Extension	20	500	.....	5	Not reported		Not reported		75,000	283,940	358,960
Navajo	.....	10,000	.....	*	10,000	2,000	5	$ 6,000	4,990,000	.....	5,000,000
San Juan	5,000	.....	.....	100	5,000	1,000	5	162,500	3,810,000	.....	3,810,000
Pueblo Bonito	Unknown				400	200	2	1,336	1,500,000	.....	1,500,100
Western Navajo	1,000	12,000	7,300	45 (est.)	1,000	400	2.5	10,100	3,080,347	338,700	3,379,347
Hopi	10	.....	3,999	*	4,000	1,500	2.67	22,000	1,566,330	730,000	2,472,330
Total	6,030	22,500	11,299	200	20,400	5,100	3.48	$301,936	14,963,677	1,342,040	16,520,627

* Navajo and Hopi together 50 miles.

and Hopi are doubtless responsible for the singular purity of the native stock. Tuberculosis and especially trachoma have gained a foothold from which they are to be dislodged only by vigorous exertion on the part of the present much undermanned medical corps.

The tables showing the uses for which the lands of the Navajo-Hopi Reservation are adapted indicate the small area to which agriculture must be confined, and also the large acreage unfit for either farming or grazing (Tables II and III). The classification of lands as given in the table, while only approximate, is believed substantially to represent existing conditions; about 40,000 acres

TABLE III—Stock-Raising on the Navajo-Hopi Reservation, 1912

Agency	Grazing lands, acres	Horses, mules, burros	Cattle	Sheep and goats	Value of all stock sold and slaughtered	Value of blankets sold
Navajo Extension....	75,000	1,040	1,240	23,000	$ 7,400	$ 7,000
Navajo.....	4,990,000	162,000 (est.)	10,000	700,000	.....	270,000
San Juan.....	3,810,000	141,000	6 000	450,000	181,250	200,000
Pueblo Bonito.....	1,500,000	10,651	10,550	146,776	.....	25,000
Western Navajo.....	3,020,347	12,200	2,500	150,000	48.200	15,000
Hopi.....	1,588,320	6,150	3,000	142,000	83,006	100,000
Total.....	14,983,667	333,041	33,290	1,613,776	$319,856	$617,000

out of a total of over 16,000,000 acres, *i. e.*, less than .0025 of the area, are suitable for agriculture. One-half of the farm lands is already occupied, although not utilized to its full capacity. The condition of the live-stock industry as shown in Table III indicates clearly the use for which the Indian lands are adapted. The introduction of sheep by the Spaniards was a contribution to the welfare of the natives deserving of the highest praise. The statistics presented show clearly that the economic future of the Navajo country is bound up with stock-raising rather than with agriculture. Irrigation on a moderate scale is feasible along permanent watercourses, and small parcels of land may be reclaimed by developing springs and constructing wells and rain catches, but a policy designed to improve breeds, conserve grazing, introduce new forage plants and to develop many small water supplies for stock is most likely to insure the highest usefulness for the region.

Fluctuation in Population

From a few small roving bands the Navajos have developed into a populous and powerful tribe since the landing of Columbus. According to their traditions the original clan was created in the San

Juan Valley about 500 years ago. People living on the earth before that time, except the Kisani, who remained hidden in their cliff houses, were destroyed by demon giants whose heads are the volcanic necks, whose bones and also weapons are the abundant logs of petrified wood, and whose blood has congealed to form lava flows. As a people they were first specifically mentioned by Zarate-Salmeron in 1629, as "Apaches de Nabaju." By the middle of the seventeenth century, through increase in population and union of families and clans, they had become sufficiently powerful to compete with adjoining tribes and their history from about 1700 to the time of the Mexican War is a record of raids on pueblos and outlying white settlements. From about 1840 to 1860 the Navajos occupied the center of the stage in New Mexico—waging constant warfare with the pueblos and the Mexican settlers. After New Mexico and Arizona came into the possession of the United States, a series of unsuccessful military expeditions directed against the Navajos culminated in the campaign of 1863. During this year Kit Carson invaded the Navajo country, killed the sheep, burned the cornfields, and took possession of water holes, thereby forcing the surrender of the whole tribe. The number of prisoners held at Bosque Rodondo was 7,300, which was believed to include the whole tribe and doubtless was 90 per cent. of all the Navajos in New Mexico and Arizona. In 1869 the Navajos were again brought to one center for the purpose of receiving sheep, allotted to each family by the Government; a careful count made at that time and including allowances for absentees, showed a population of 9,000. The census of 1890 credits the tribe with 17,204; the figure for 1900 is 20,000; by 1912 the number had increased to 30,000. The task of enumerating the members of a nomadic tribe thinly scattered over 23,000 square miles of arid and unmapped land is attended with great difficulties and the results are necessarily uncertain. There is no doubt, however, that the Navajo tribe has greatly increased in numbers during the past half-century, a fact unparalleled in the history of American Indian tribes.

The Hopis, on the other hand, have decreased in population since their discovery by the Spanish in 1540. Disregarding the wild statement of Espejo in 1583 that 50,000 Moquis lived in one village alone, the first creditable figure of Hopi population is given for 1774 by Escalante, who spent eight weeks at the Tusayan villages, and found 7,494 people of various ages, two-thirds of them at Oraibi. Governor Ansa reported in 1780 that the entire population of the Hopi pueblos was 798; 6,698 persons had died of disease and

starvation during the previous three rainless years. The official figure for 1846 is 2,450; for 1861, 2,500. The census for 1890 gives 1,996 inhabitants; for 1900, 2,004; for 1,912, 2,068; these occupied the villages of Hano, Sichomovi and Walpi on the First Mesa; Mishongnovi, Shongopovi and Shupaulovi on the Second Mesa; Oraibi on the Third Mesa; and Moenkopi in the Moenkopi Valley.

Habitability of the Navajo-Hopi Reservation

Under present climatic conditions on the Navajo Reservation, stock-raising supplemented by agriculture is capable of supporting about two Indians per square mile without change in farm or range practice; *i. e.*, the population could be increased by one-half. Development of the water supply, protection of the grazing lands, and selection of forage and farm crops would permit the present mixed population to become 80,000 or 100,000 or about 3 per square mile. By agriculture alone probably not more than half of the present population of 33,000 could be supported on the basis of prevailing farm practice.

These observations lead naturally to the question of past habitability of the Navajo country. Could a larger population have been supported before the days of domestic animals? And did such a population occupy this region as agriculturists? Nearly all explorers and students of the Southwest point to the innumerable ruins of the ancient people as evidence of denser population in the days of the cliff dwellers. In order to support a population some hundreds of times greater than now exists in this region, more favorable conditions for agriculture must have prevailed. To meet this demand, a period of former greater humidity is assumed. As stated in a recent work:[8]

> "Various lines of evidence point to progressive desiccation of the region . . . . since the beginning of the pueblo and cliff dwelling period . . . ."

For the Navajo Reservation the geologic evidence of periods of greater rainfall, also of lesser rainfall, or at least periods of erosion alternating with periods of aggradation, is conclusive. The evidence of recurrent periods in strength and weakness of streams, and of the accumulation and dissipation of ground water is in harmony with the wide variation in precipitation shown by the rain gages at Wingate and Fort Defiance (Fig. 6, Part I). That climatic

[8] Hewett, Henderson and Robbins: Physiography of the Rio Grande Valley, *Bur. Am. Ethnol. Bull. 54*, 1913, p. 68.

fluctuations of considerable amplitude may have occurred within the past thousand years needs only to be stated to insure belief, but that the history of the pueblos and their ancestors is proof of progressive aridity sufficient to depopulate the region is, to my mind, an assumption insufficiently supported by field evidence.

Relation of Ruins to Population. In order to extinguish a large population, a former large population must be shown to have existed. And this is done by the advocates of progressive aridity by the simple process of estimating the house room indicated by the thousands of ruined buildings. This method of reasoning involves the assumption that these ancient settlements were contemporaneous. The history of the Kisani, however, indicates that they belong to the species of migratory village dwellers. No large number of the ruins were occupied simultaneously, and houses or even villages were occupied for only part of the year. In their migrations the people stopped from time to time, building pueblos and cultivating fields. Tradition speaks of many places where groups or clans remained for five, ten, or fifteen "plantings," ample time for the construction of houses and the accumulation of potsherds. As pointed out by Fewkes,[9] the priests of the Snake clan relate that after their ancestors had been dropped from a rainbow at Navajo Mountain they were compelled by reptiles to leave their canyon homes and that on their southern migration they built houses at stopping-places all the way from Navajo Mountain to Walpi. The numerous well-built pueblos and single buildings of the Verde Valley, now in ruins, have been shown by Mindeleff to be the result of brief occupation.[10] The migration of villages in the ancient Province of Tusayan is significant in this connection (Fig. 24). None of the present Hopi villages except Oraibi occupy their sites of 1540; more than half of them date from the middle of the eighteenth century. The old villages now in ruins were in exposed situations, the pueblos of later date are perched high on precipitous capes extending southward from the desert-encircled island of Black Mesa (Fig. 25). The ancient villages were occupied in peaceful times before the coming of the warlike Navajos. In their new positions the Hopis have successfully resisted the attacks of Piute, Navajo and Spaniard. Oraibi, surrounded by vertical walls of sandstone and dominating the plain of the Tusayan washes, doubtless owes its uninterrupted history to its original strategic position. Six villages

[9] *Bur. Am. Ethnol. Bull. 50*, 1911, p. 3.

[10] C. Mindeleff: Aboriginal Remains in Verde Valley, *Bur. Am. Ethnol., 13th Ann. Rept.*, 1896.

at First Mesa and five at Second Mesa are now in ruins. By those unfamiliar with the historical evidence these ruins have been taken as proof of former larger population, whereas the old sites have merely been abandoned for new. In the Jadito district Awatobi, perhaps the largest of all the villages known to the Spanish explorers, was destroyed by war in 1700 and, as the chronicle runs, "the prisoners were taken to the sand hills of Mishongnovi for treatment." A few years ago the "stand pat" party of Oraibi seceded and built a new pueblo at Hotevilla.

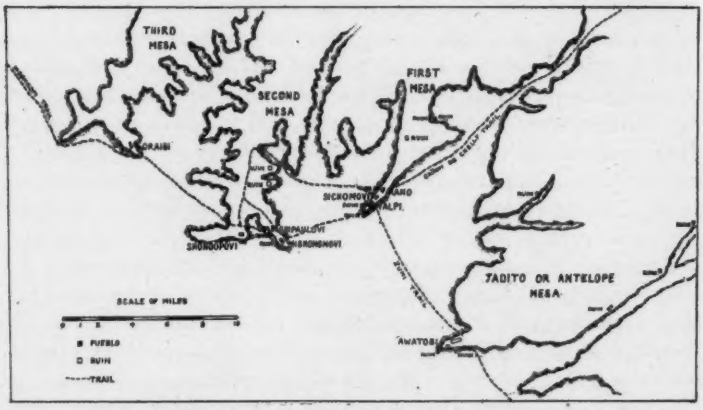


FIG. 24—Map of ancient and modern villages in the Province of Tusayan based on topographic and archeologic surveys. The villages represented by ruins are in unprotected positions, suitable locations before the advent of the Navajo but untenable during the raids of the warlike nomads.

Within a radius of ten to twenty miles from each Hopi village are a number of "suburban villas," some quite elaborate, which are occupied for four or five months each year by Indians whose fields are at a distance. For many years the well-built pueblo of Moenkopi, with rooms for 200 people, was occupied only during the growing season by farmers from Oraibi, forty miles distant. Since 1890 numerous small houses have been erected at or near springs in the foothills at some distance from the centers of population, and Fewkes[11] is of the opinion that children now living may see Walpi depopulated. This process of integration and disintegration of populations in response to the coming and going of hostile neighbors appears to be normal to Hopi life.

The source of the clans at Walpi and Sichomovi is interesting in

[11] *Bur. Am. Ethnol., 17th Ann. Rept.*, 1898, Part II, p. 580.

this connection. As shown by Fewkes, two are from southern Utah, seven from the Little Colorado, six from the Rio Grande Valley and the New Mexican pueblos of Zuni, Acoma, Jemez, etc. So far as climate and water supply are concerned these immigrants did not better their conditions by coming to Tusayan.

Another feature of Hopi life, one which doubtless prevailed among their ancestors, must be taken into account in estimating

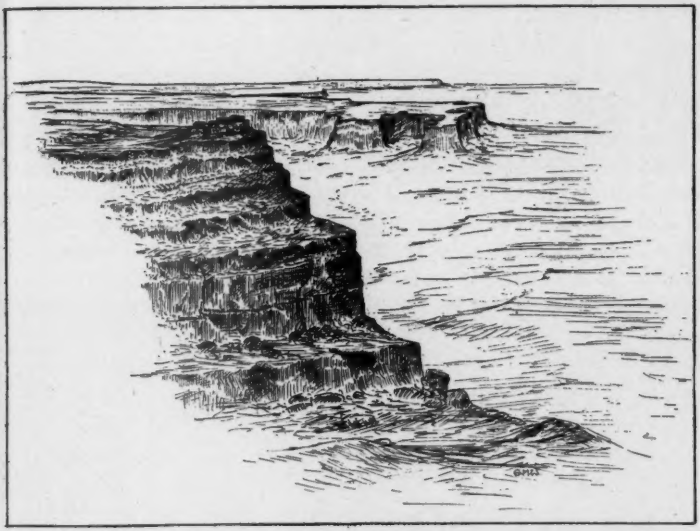


FIG. 25—Sites of the Hopi villages in the Province of Tusayan constructed from topographic surveys and measured stratigraphic sections. Oraibi is in the foreground; Shongopovi and Shipaulovi are in the middle distance; Walpi on the First Mesa is barely distinguishable in the background. The cliffs rise abruptly out of the flat floor of the Tusayan washes and project like wave-washed capes into the sands of a desert sea.

population. Houses are grouped by clans and a man at marriage goes to his wife's house. The clan with the largest number of marriageable daughters increases in size at the expense of other clans. Many new houses are thus constructed while nearby ones are left vacant. Increase in the size of a village does not necessarily indicate increase in population, and the presence of uninhabited houses is not evidence of a decrease in the number of inhabitants. The counting of rooms in ruins is not therefore a satisfactory method of arriving at the number of former inhabitants. On the basis of ruins estimates as high as 500,000 have been given for these ancient people. The figure given by Bandelier, 30,000, represents,

to my mind, about the total population of northern Arizona, southern Utah, northern New Mexico and southern Colorado, during the palmy days of Kisani life.

If progressive desiccation were responsible for the extinction of the cliff dwellers, it follows that these ancient people could not now support themselves at their former homes. The field evidence is not in harmony with this conclusion. Disregarding the necessity of protection from human enemies, the requirements of a Kisani settlement are five:

1. A sufficient number of fields with suitable slope for storm flood irrigation and with soil tillable with wooden and stone implements. This requirement is met within a small radius at all seats of ancient occupation which I have visited.

2. A small rainfall or snowfall in winter and at least one inch of rain during July or August. This summer rain is the critical factor and prayer and penance are called in to secure results. The amount of rain must not be excessive, for excessive flooding and consequent erosion is as disastrous as too little rain. These precipitation demands are met at all ruined villages with which I am acquainted except Moenkopi and those in the Little Colorado Valley and Lower Tusayan washes, where flats along the washes are well irrigated by summer flood streams.

3. A growing season long enough to mature food plants. The cliff and plateau villages are limited to regions where the growing season exceeds 100 days. The higher and better-watered but colder parts of the reservation were not occupied until after the introduction of sheep.

4. A food plant adapted to arid regions. Hopi corn meets this demand. This plant is peculiarly adjusted to arid conditions and as handled by the Indians needs only the summer rain or an equivalent amount of water artifically applied to bring it to maturity. It thrives in desert washes and even in sand dunes. A typical Hopi corn field is not an attractive sight. The corn stalks are short and the plant expends little energy in producing leaves; yet it is vigorous and productive (Figs. 26 and 27). Perhaps the most remarkable feature of the corn is its response to deep planting,—an essential in arid climate agriculture. In digging up hills of Hopi corn it was found that the seed had been planted six to twelve inches below the surface, where even during the dry spring months the soil is moist and germination assured. Quantitative experiments made by the Bureau of Plant Industry show that the mesocotyl of Hopi corn

FIG. 26.

G. N. Collins, photo.

FIG. 27.

FIG. 26—Typical field of Hopi corn. The seed is deeply planted along desert washes and sandy slopes and depends on rain flood irrigation to reach maturity.

FIG. 27—Single stalk of Hopi corn. One to four ears grow on each of these short stalks. The energy of the plant is expended in producing roots and seed with little attention to superfluous foliage.

attains lengths of ten or even twelve inches whereas two to four inches is normal for common varieties[12] (Fig. 28).

5. Water for domestic use. The amount need not be large, but must be permanent and capable of protection. Flowing water on the Navajo Reservation is scarce, but springs which have been known to outlast three continuous years of drought are fairly numerous. For many years no permanent water was found at certain large ruins, but belief in its existence has led to its discovery at several places. At Burro Springs a good supply was found by trenching sand dunes. In Jadito Wash an ancient spring was recovered by removing talus; and at one of the largest ruins in Arizona, Kinteel or Wide Ruin, whose source of water was long unknown, excavation revealed a well which now furnishes water for 1,000 head of sheep in addition to supplies for a trading post.

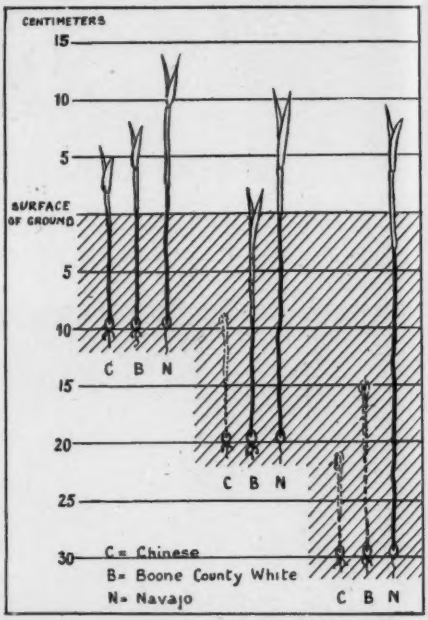


FIG. 28—Diagram showing the root habit of Hopi corn as compared with other varieties, indicating a remarkable adaptation to arid conditions.

In view of these facts, I see no reason why the present Hopis in numbers equal to the probable population of these ancient settlements could not succeed as agriculturists in the homes of their ancestors. In fact there is a well-authenticated tradition that a colony of Hopis, about 1750, reoccupied the abandoned fields and cliff houses of Canyon de Chelly.

It is interesting in this connection to note that the geographic conditions which controlled the location of settlements of the ancient Kisani race exert the same influence on the modern Indians, both Hopi and Navajo, and also guide the white man in his efforts to make the Navajo country more habitable. As shown on the map

[12] G. N. Collins: Pueblo Indian Maize Breeding, *Journ. Heredity*, Vol. V, 1914, No. 6.

(Fig. 29) the thickly populated areas during the days of the cliff dweller are the centers of population of the Navajo and also are the areas which are best adapted for settlement by the whites.

With reference to decrease and increase of tillable acreage and the change in location of fields, the habit of streams of the Navajo Reservation needs to be taken into account. At the present time

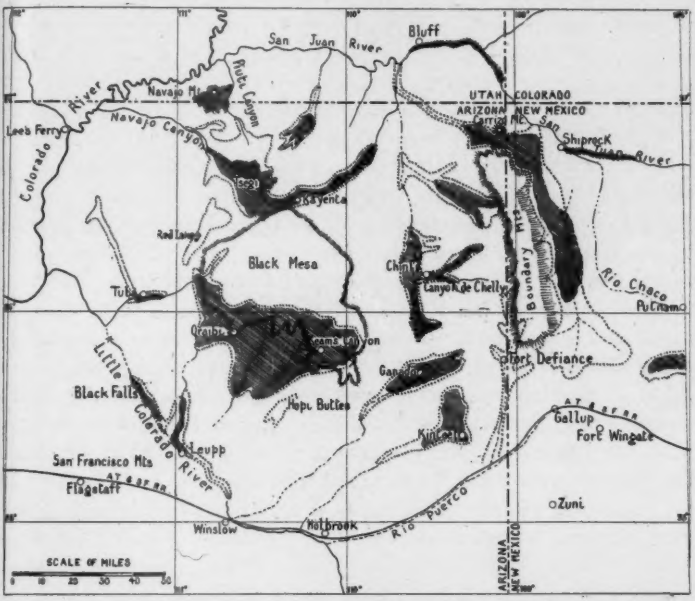


FIG. 29—Sketch map showing the positions of fields cultivated by the Kisani race of the cliff dweller period in relation to areas now suitable for cultivation. The areas shaded by diagonal lines include abandoned fields and ruins: between dotted lines are enclosed areas suitable for agriculture and partly utilized by the present Hopis and Navajos.

the streams are actively entrenching themselves in an older valley fill. Practically every canyon and wash on the Navajo Reservation is traversed by an inner canyon with alluvial walls (Fig. 30). This change in stream habit from filling to trenching has occurred within recent times. In 1850 Simpson camped at a pond near Fort Defiance in a valley now thoroughly drained. The peat beds on the margin of three lakes in Tsegi Canyon, mapped by H. M. Wilson in 1883, are about 20 feet above the present valley floor. In several other valleys similar conditions were noted. The cutting of the alluvial-walled canyon at Moenkopi has taken place since the Mor-

mon occupation in 1878. The accounts of Indians, traders, and Government officials agree in placing the beginning of vigorous erosion at about 1885. Without considering at this time the factors responsible for this change of stream habit, two geographic results may be pointed out:

1. The number of perennial streams has been increased and their surface flow augmented. More water is available for irrigation by diversion, and a larger number of reliable watering places for stock has been provided. It is interesting to note that strata containing corn cobs, broken pottery, and remnants of ancient gardens are exposed in the banks of these newly made channels, indicating occupation during periods of aggradation and erosion alike.

2. Many fields, including some of the best agricultural land on the reservation, have been destroyed. The allotting agent for the Hopi Reservation estimates that 10 per cent. of the land cultivated by the Hopis in 1890 had been destroyed by 1910. This figure may be used as representative for the entire Navajo country.

The response of the Hopi and Navajo farmers to these changed conditions is suggestive. Many fields in the valleys were gradually deserted and the adjoining summer dwellings abandoned. New fields on the higher slopes were selected, and ancient plots on interstream spaces far removed from their present homes were reoccupied. Judging from the amount of pottery, some of these farms had been cultivated for long periods in olden times and the state of the ruins and the age of brush now occupying the fields indicate that they may have lain idle for 50 or 100 years. Other fields were selected in places where flowing water, revealed by recent erosion, afforded opportunity for irrigation directly from streams. At Moenkopi, where the supply of water has greatly increased, the temporary settlement has become a permanent, thriving village (Fig. 31). It is probable that the history of the Kisani includes a number of such episodes which involved readjustment, but not depopulation. The acreage now under cultivation, on the Navajo Reservation, so far as determined, has not decreased as the result of the changes during the past 30 years.

Conclusion

The Navajo country is a virgin field of geographic research; only reconnaissance work has as yet been undertaken. So far as present observations extend there is scant evidence of fundamental changes in the physical environment during the past six or eight centuries. Detailed studies may result in a different conclusion, and lead to

C. R. Jefferis, photo.

FIG. 30.

FIG. 31.

FIG. 30—View of Tsegi Canyon as seen from its rim. The walls are of red sandstone 600 feet in height. The flat floor is formed of alluvium 20 to 50 feet thick, into which an inner valley has been cut to depths of 10 to 30 feet.

FIG. 31—The Hopi village of Moenkopi with adjoining cornfields. For a century previous to about 1885 this site was intermittently occupied by a few Hopi farmers from Oraibi; the present population is 225. Reoccupation of these long-abandoned farm lands was favored by two factors: protection from roving bands of Piutes and Navajos and increase in supply of available water.

the establishment of long cycles of unfavorable climatic conditions in place of the recognized alternating favorable and unfavorable short-period fluctuations characteristic of arid regions. The geographic history of northern Arizona is the history of the Kisani race. Many details of this history are recorded, but its large features and its dominant controls are as yet unknown. The problem is comparable to that presented by the Incas of Peru and is, I believe, to be solved by methods adopted for that work: a long period of field study of the geographic history of the region carried on in the presence of the ruins and assisted by the descendants of the old race. With suitable maps at hand, two years' field study among the unmolested ruins and uncharted terraces of Rainbow Plateau should result in a valuable contribution to the geography of the Navajo country.*

* Reference should also be had to the note on the Navajo Indians under "Geographical Record" in this number.—Ed.

CLIMATIC SUBDIVISIONS OF THE UNITED STATES

By ROBERT DeC. WARD
Harvard University

In dealing with the climatology of an area as large as that of the United States, we must, if our discussion is to be clear and systematic, adopt some scheme of subdivision into climatic districts, or provinces. Many suggestions have already been made along this line, and Mr. W. L. G. Joerg has recently done a useful piece of work in bringing together reproductions of the most important classifications of the "natural regions" or provinces of North America and of the United States.[1] Twenty-one different schemes are presented. Eight are grouped as *structural*, 4 as *climatic*, 2 as *vegetational*, 1 as *zoogeographic*, and 6 as *natural regions*. In addition, Mr. Joerg gives a new classification in which he has selected what seems to him best in the others.

Of the climatic classifications included by Mr. Joerg, those of

[1] W. L. G. Joerg: "The Subdivision of North America into Natural Regions: A Preliminary Inquiry." *Annals Assoc. Amer. Geogr.*, Vol. IV, 1914, pp. 55-83. Also gives references to other classifications not especially considered in the article. It adds greatly to the convenience of the reader that one scale of map is used for all the North American classifications, and one scale for all those dealing with the United States.

Hult, de Martonne and Köppen seem to the writer too detailed for general use. Supan's map is the most widely known.[2]

The United States Signal Service and Weather Bureau have, at various times, adopted different subdivisions, none of them included in Mr. Joerg's article, but these are all groupings of districts and stations for convenience of administration, of forecasting, of the collection of data, or of reference, rather than climatic provinces. Hence state or purely arbitrary lines have generally been taken as the limits of the different divisions, although the larger topographic

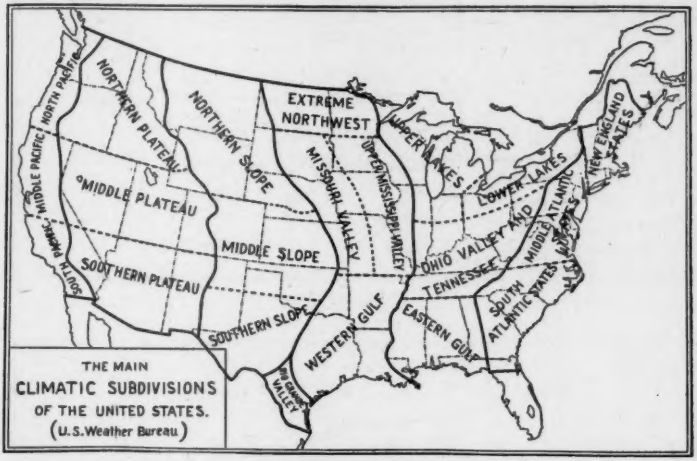


FIG. 1

features, such as the Rocky Mountains and the Sierra Nevada-Cascades, have also been used. A good many years ago the Signal Service adopted a scheme of 21 "climatic subdivisions," which has been retained with little change, but is now used only in the main table of climatic data that has appeared without appreciable change monthly in the *Weather Review* for the past 30 years or more under the heading, "Table 1: Climatological Data for the United States," etc.; and in the synopsis of weather conditions on the Washington daily weather map[3] (Fig. 1).

[2] The classifications of Hult, Köppen and Supan have been considered by R. DeC. Ward: "The Classification of Climates," *Bull. Amer. Geogr. Soc.*, Vol. 38, 1906, pp. 401–412 and 465–477. The maps of Supan and of Köppen are also reproduced in the writer's "Climate, Considered Especially in Relation to Man," 1908, Chap. III. Supan's map may also be found in the "Atlas of Meteorology," 1909, Pl. I.

[3] This map was published in Dunwoody's "Weather Proverbs," *U. S. Signal Service Notes*, No. IX, 1883. Also, in greatly reduced form, in Waldo's "Elementary Meteorology," 1896, p. 318.

A somewhat simpler set of subdivisions is that now used for the weekly forecasts, given to the press each Tuesday and published in the *National Weather and Crop Bulletin* (Fig. 2).

FIG. 2

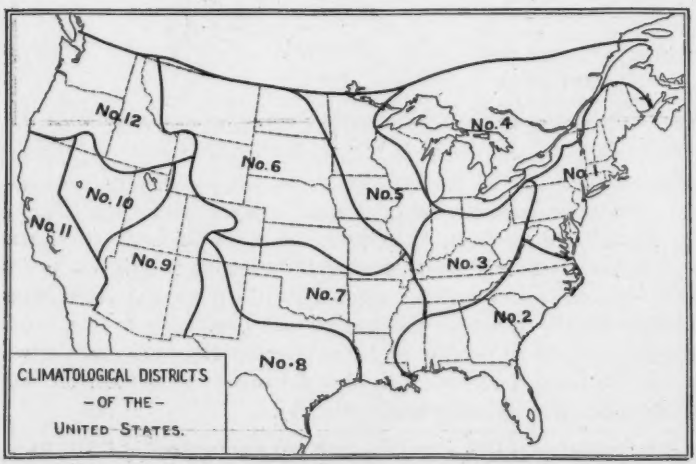


FIG. 3

Beginning with July, 1909, the Weather Bureau, cooperating with various other Government scientific departments, adopted 12 large districts, "generally having the same boundaries as the great

drainage basins of the country, these boundaries being marked off by the natural topographical divides" (Fig. 3).

These divisions were called "climatic districts." This they were to some extent, but the drainage area, not the climate, was the basis of subdivision. This scheme of classification was continued for the publication of the daily and monthly data from all stations in the *Monthly Weather Review* until the end of 1913.

For the general purposes of the publication of climatic data, the Weather Bureau has more recently adopted 106 "climatological sections," determined partly by state lines and partly by considerations of administrative convenience. Topography is taken into account in some cases (Fig. 4). This scheme was adopted in the "Summaries of Climatological Data by Sections," published as *Bulletin W*, 1912.

This great variety of suggested subdivisions, whether primarily physiographic, botanical, zoological, climatic, or "natural regions," is confusing, if not discouraging. Moreover, there is no limit to the number of possible classifications, for these depend on any author's special interest or view-point, which may be climatic, or botanical, or physiographic, or one of administrative convenience. Even from the single view-point of climate alone, an almost infinite number of classifications might be proposed, for we may take as the basis of subdivision either the special conditions of one climatic element, or various combinations of two or more elements.

In working out a scheme of climatic subdivisions there seem to the writer to be a few essential considerations which should be kept in view. The classification must be simple. The separate divisions should, when possible, be bounded by large and easily recognized physical, or political, lines. Arbitrary limits, difficult to remember and to locate, should be avoided whenever possible. The scheme ought not to be too individual, but should commend itself to those who wish to use it on the ground of its being rational and practical. In any climate in which the cyclonic and anticyclonic control of weather types is a distinguishing characteristic, as it is in the belt of the prevailing westerlies, the climatic subdivisions should be determined with due regard to this control, for it is weather which, in the long run, gives a climate its character.[4] In other words, the subdivisions should be chosen because of their special relations to cyclonic and anticyclonic tracks and movements; to local and characteristic weather distribution around lows and highs; to

[4] This matter has been more fully discussed by the writer in a recent paper, "The Weather Element in American Climates," *Annals Assoc. Amer. Geogr.* Vol. IV, 1914, pp. 3-54.

cyclonic and anticyclonic winds; and because of the general similarity of weather types over each province. Finally, the districts should, as far as possible, be the same as those which have been officially adopted in the publication of the meteorological and climatic data of the region. If, for example, the published data are grouped according to one scheme, while the climatic subdivisions are based upon a different scheme, there is great inconvenience in the use of these data. To take the specific case of the United States. When there is no good and sufficient reason for using other boundaries, state lines and the divisions adopted in the Weather Bureau's 106 "Climatological Sections" (see p. 669) are both convenient and practical.[5] Such a classification of climatic provinces makes it an easy matter to look up the special and detailed characteristics of each subdivision in the official publications of the Weather Bureau. The importance of this point will readily be appreciated by those who have endeavored to work out the climatology of some "climatic province" which did not coincide with any unit area adopted for purposes of publication of the official data.

In the United States there are three great natural topographic and climatic subdivisions. These are (1) the eastern, embracing about one-half of the whole area, extending from east of the Rocky Mountains to the Atlantic Ocean and Gulf of Mexico; (2) the western mountain and plateau district, and (3) the narrow Pacific slope. Nowhere in the United States are sudden changes in climate to be met with in going from north to south, or *vice versa*. The transition is everywhere slow and gradual. The natural climatic subdivisions are, therefore, separated by meridional, not by latitudinal, lines. So far as east-west boundaries are necessary, these are therefore inevitably largely arbitrary.

Eastern Province. The first, great Eastern climatic district, enormous as is its extent, has nevertheless a certain remarkable uniformity in its weather types and its climate. It is freely open to east, north and south; to the Atlantic, to Canada, and to the Gulf of Mexico. Its seasons are strongly contrasted; its winter temperature gradients between north and south are unusually steep; its continental climate reaches to the Atlantic seacoast, with little modifying effect of the ocean waters; its rainfall is, as a whole, plentiful and well distributed throughout the year; its frequent and well-developed cyclones give it many, rapid and marked weather changes and sharply contrasted weather types, controlled to a large

[5] In Professor A. J. Henry's "Climatology of the United States," *Bulletin Q*, 1906, the numerical data are all given by states.

extent by the diversity of temperature and of moisture conditions of the district from which the winds come. With the approach towards the Rocky Mountain area, on the west, there comes also a gradual transition to the drier, sunnier, and less cyclonically controlled climate of the Great Plains and eastern foothills. There is here no easily fixed and sharply determinable climatic boundary, although the lines of equal rainfall, cloudiness and relative humidity all trend very generally north and south. The 100th meridian, the critical mean annual isohyetal line of 20 inches, and the 2,000-

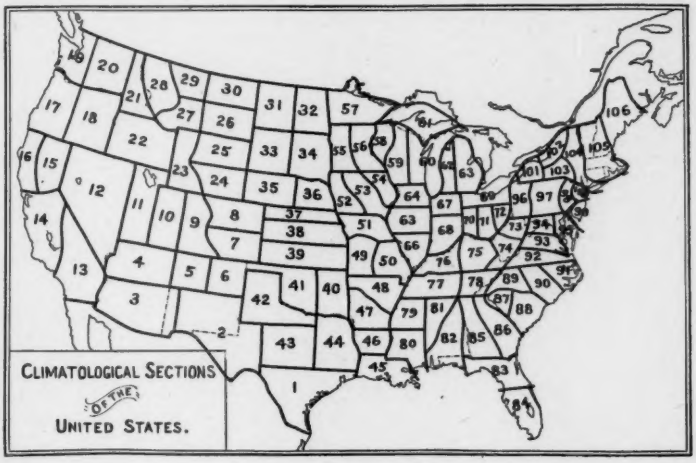


FIG. 4

foot contour line, are all reasonably satisfactory. For our purpose we have selected the (generalized) line which follows the 2,000-foot contour. This agrees fairly closely with the 20-inch isohyetal line, and also with the 100th meridian, and marks the eastern margin of the physiographic unit of the Great Plains (Fig. 5).

Gulf Province. To the south, over the states bordering on the Gulf of Mexico, the temperatures are higher; the winters are much milder; the cyclonic control is weaker; the temperature and weather changes are fewer and less emphatic; diurnal phenomena are more marked; conditions are more "settled"; the rainfall is heavier and usually has a marked summer maximum. Here, on these great warm, damp lowlands of the southern coastal plain, we have the wealth of southern cotton, and sugar cane, and subtropical fruits. For these, and other reasons, this southern portion of our great Eastern dis-

trict may well be set apart as a subordinate climatic province. There is, however, no sharp climatic boundary of any kind which may be taken as the limit of this southern Gulf province. Hence an arbitrary line has been drawn, which includes, on the south, most of the Gulf coastal plain; is not far from the position of the mean annual (surface) isotherm of 65°, marks, in its central portion, the northernmost position of the 100-foot contour line, and also accords with the dividing lines between four of the Weather Bureau's official "climatological sections."

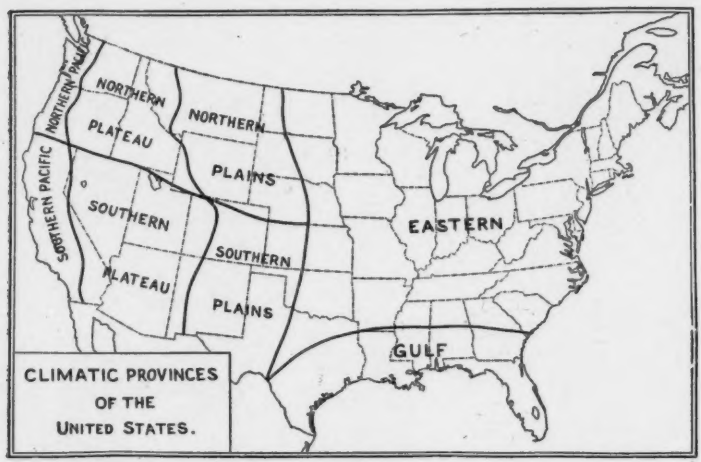


FIG. 5

Plains Province. The Plains climatic province in the proposed classification is included between the (generalized) line following the 2,000-foot contour and the (generalized) line of the main Rocky Mountain divide. The latter may be taken as a fairly satisfactory climatic boundary in relation to rainfall, cold waves, the direction and characteristics of the winds, and the prevailing weather types. The cyclonic control is less marked over the Plains than over the Eastern province, both because of the difference in relation to the storm tracks, and because of the generally less emphatic development of the storms themselves. The climatic differences due to latitude and relation to cyclonic control are so considerable between the northern and southern Plains that a dividing line, which, however, marks no climatic boundary, may be drawn following in a general way the state lines between Wyoming, Nebraska, Colorado and Kansas; and

thus conveniently agreeing with divisions adopted by the Weather Bureau.

Plateau Province. The Rocky Mountain divide on the east, and the Sierra Nevada-Cascade divide on the west (both broadly generalized) are natural and convenient boundaries for the Plateau province. A great interior region of mountain ranges, high plateaus and deserts, its chief characteristic is its small rainfall. It has the minimum cloudiness and the minimum relative humidity in the United States. Comparatively few cyclonic storms cross it. A persistence of winter high- and of summer low-pressure conditions characterizes it. The rain-shadow effect of its western mountain barrier necessitates irrigation undertakings, and where these are impracticable the aridity of the desert reigns supreme. Severe cold waves of the eastern type are barred out by the Rocky Mountain barrier. Diurnal, rather than cyclonic, phenomena prevail. Mountain climates, with their special peculiarities of strong sunshine, dry air and large temperature ranges, are here found. An east-west line, roughly coinciding with the state boundaries of Oregon and Idaho on the north, and of Nevada, Utah and Colorado on the south, agrees, in a general way, with the southern boundary of the Columbia plateau, and also with boundaries of the Weather Bureau climatological sections. Hence, such a line may serve as a convenient division between the northern and southern Plateau provinces.

Pacific Province. The narrow coastal strip west of the Sierra Nevada-Cascades is the Pacific province, with its great variety of climates, from rainy to arid, from those of the lowlands to those of the snow-covered mountain tops, from the cool summers of the coast to the great heat of the interior; with its prevailing mildness and equability, its subtropical rainy season and subtropical cyclonic controls, its great forests and its fertile agricultural valleys, its irrigated fruit orchards and its far-famed California health resorts. Between the rainier, cloudier, damper and more changeable north, and the drier and more settled south, the state line between California and Oregon is an easily determined and fairly satisfactory boundary. It does not differ greatly from the topographic divide between these states, and accords with the established scheme of subdivision adopted in the publication of the Weather Bureau climatic data.

For purposes of teaching the writer has found the scheme of climatic subdivisions here presented simple, useful and satisfactory.

The eight separate provinces are large enough to make further subdivision possible, to meet any special preferences or needs. The boundary lines are easily determined and easily remembered. And the provinces here adopted are such that the official Weather Bureau data, which are mostly subdivided on a state basis, may easily be fitted into the scheme.

ARGENTINA AND THE ARGENTINES*

By BAILEY WILLIS
Leland Stanford Junior University

Contrasts strongly distinguish North and South America, and among those most generally recognized in the popular mind there is none more conspicuous than the stability of self-government in the one and its instability in the other continent. The causes are racial in part; they are in a measure inheritances from distinct colonial policies; and they are also due to geographic conditions. The last are unfortunately permanent. Self-government is a hardy plant. Like wheat and oats it flourishes where there is ozone in the air and frost. Argentina is the wheat country of South America. And it is the home of that Latin American people which, in developing a truly republican government, leads among Spanish Americans.

The great valley of Chile and parts of southern Brazil, like Argentina, enjoy a temperate climate. In those selvas, pampas, and Andean valleys of the tapering tip of South America, only one-fifth of the continent in area, men may develop the combination of physical and intellectual qualities which make organizers and rulers of great states. They have energy and brilliancy as individuals, they are learning coöperation, patience, and true patriotism as nations, and there is hope that they may be able to establish popular government on a firm basis within their own dominion, and administer for humanity the vast riches of tropical South America, where that hope has proved illusory.

The highland of southern Brazil and Uruguay, stretching from Rio de Janeiro to Montevideo and from the coast to the Paraná, is an area as large as that which lies in the United States between the Great Lakes and the Gulf and the heights of the Alleghanies and the Mississippi. Outside of the great centers Rio de Janeiro and

* Abstract of a paper read at the joint meeting of the Association of American Geographers and the American Geographical Society in New York on April 10, 1915.

São Paulo, it is a forest country awaiting development. With a genial climate like that of northern Georgia, with beautiful scenery and fertile soils, it possesses every natural attraction to invite immigration. But it lacks communications, and its development waits on good government and the energizing influence of capital.

Across the Rio de la Plata from this forest land of Uruguay and Brazil stretches a totally different country, the vast pampa plain of Argentina. It has always been treeless, a vast expanse of undulating grass and shrubs, distinguished from plains in general by the absence of running waters and the multitude of shallow pools and lakelets. It is composed of the alluvium of ancient rivers, which brought fine soil and volcanic dust from the Andes and formed the fertile wheat fields of the Argentine. The area of fertile land is limited to some 200,000 square miles, not by differences of soil, but by insufficiency of rainfall. At Buenos Aires the rainfall is from forty to fifty inches; as we go west toward Cordova and Mendoza it diminishes, until about Cordova the hills present a semi-arid aspect, and near Mendoza the vineyards must be irrigated. A similar change is passed through between the Mississippi, Oklahoma, and western Kansas. But in the Argentine the climate is milder and Mendoza is the southern California of that country.

Northern Argentina includes the lowlands of the valley of the Paraguay, like those which surround the Gulf of Mexico, and uplands which are like the peninsula of Florida. Southern Argentina, comprising all of Patagonia except the strip of the Andes which belongs to Chile, is a vast sheep country where the active merino sheep thrives in the semi-arid plateaus of northern Patagonia and the long-wooled English breeds with their Scotch shepherds find a congenial home in the cold mists of Santa Cruz and Tierra del Fuego. Argentina thus ranges in climate from orange groves to moorlands like those of Scotland, and the great central wheat and grazing lands of the country are like our South Atlantic and Gulf States in climate and products.

Like other Spanish-Americans, Argentines of the colonial period sprang from the mingling of the Spanish and Indians. In different sections they developed different types according to the elements that entered into the mestizo race and the environment which determined their occupations. The northern cities, Tucuman, Cordova, Mendoza, founded by conquerors who came down from Peru and maintained by soldiers from the vice-regal forces at Lima, represented the spirit of adventure and conquest, the haughty, martial element of conservative Spain. And that is still the dominant

note of those communities. Buenos Aires, on the other hand, was settled by colonists who came with wives and children, with animals and implements for husbandry, prepared to establish agriculture and commerce. And though held back by a century of Spanish monopoly and misrule, they accomplished their purpose. From that colonial stock, augmented by immigration which in large part has remained in Buenos Aires and the rich region surrounding it, has sprung the people who have become the liberal, progressive element of the Argentine nation.

The great metropolis, Buenos Aires, with 1,300,000 inhabitants, has become the focal point of the country. Everything centers in it—commerce, the limited manufacturing industries, social life, politics, liberal education, and the arts. It has become to Argentina what Paris is to France, and as the Argentines draw their inspiration largely from French culture, Buenos Aires is strikingly French in its modern architecture and its life.

The commerce of Argentina depends upon the export of grain and meats and the importation of all manufactured goods, as well as lumber and coal. The power of the community to buy depends upon the abundance of the product they have to sell, and it is therefore of vital importance to the prosperity of the country that agriculture and grazing should be protected to the highest practicable degree against the variations of seasons. But agriculture is still carried on by very superficial and inferior methods, and the prosperity of the country is consequently liable to great fluctuations. In recent years the Government has been awake to the importance of such work as is done by the United States Department of Agriculture, and the past administration undertook the organization of an adequate force of experts in the Ministry of Agriculture. Unfortunately, that effort has been paralyzed by changes in administration and by the economies required by the present crisis.

The greatest obstacle to Argentine progress is the land question. It is a natural consequence of the colonial development which fixed upon the country the Spanish land grant system, and of the former abundance of cheap lands which individuals might easily acquire without limit, that landed estates are of enormous extent. It is extremely difficult to effect their subdivision and the establishment of the greatly needed middle class of small farmers under the Argentine laws, which unequivocally protect the property owner in his rights of possession. This is rendered even more difficult by the high prices of land, which have in recent years been produced by

land speculation. An inheritance law which provides that a man may dispose by will of not more than one-fifth of his estates and that the other four-fifths must be divided among his heirs, is slowly causing a subdivision of the estates, but the effect is in a measure offset by the tendency of families to administer the property as a common holding, and also by the extension of considerable grants and purchases to newly opened fiscal lands.

Argentina possesses extensive territories in the semi-tropical regions of the north, and also in Patagonia. These sections of the country, though open to occupation for the past twenty-five years, have developed but slowly for lack of communication. A great Argentine minister, Dr. Ezequiel Ramos-Mexia, some eight years ago took his cue from the development of the western United States through the building of railroads, and inaugurated a government policy of railroad construction, which was to have been financed by the sale of public lands, somewhat as our reclamation work has been conducted. During seven years, while serving as Minister of Agriculture and of Public Works, Dr. Ramos-Mexia carried out his purpose, and the construction of five different railroad lines was begun. Unfortunately, the natural and financial difficulties were underestimated, and the individualistic tendencies of Argentine politics, which they share with all Spanish-American peoples, brought about the resignation of the great minister and the temporary stopping of his enterprise. Nevertheless, many hundred miles of rails have been laid and that which has been accomplished will eventually be carried forward to completion.

One of the lines projected under this policy extends half way across the continent in latitude 41°, from San Antonio toward a great lake, Lago Nahuel Huapi, in the Andes, and is eventually to be built through as a transcontinental line to Valdivia on the Pacific. It will constitute the shortest possible line across South America, 600 miles in length, and will open up to communication and settlement the lake region of the Patagonian Andes, which, in extent, in climate, in beauty of scenery, and possibilities for the development of manufacturing industries by water power, compares in every respect with Switzerland. In this region a great industrial city has been laid out, and it is also proposed to establish a national park.

Under President Saenz Peña, whose death, in August 1914, was a great loss to his country, there was inaugurated a progressive movement in Argentine politics and administration. That move-

ment is now temporarily checked by adverse political influences and economic conditions. But there are strong, wide-awake statesmen, who do but await the returning wave of prosperity which the inexhaustible resources of the country will assuredly bring, and who will see to it that Argentina takes the place that is rightly hers as the leader of South American progress.

THE PUBLICATION OF THE MEMORIAL VOLUME OF THE TRANSCONTINENTAL EXCURSION OF 1912

The volume commemorating the Society's Transcontinental Excursion of 1912 has just been published. It is a quarto volume of some 400 pages containing contributions by the majority of the European guests of the Society. The papers deal with topics mainly relating to the geography of the United States. There is also an introductory article on the development of the Excursion by Professor W. M. Davis, its director, and a history of the Excursion by Professor A. P. Brigham. The papers by the European members are printed in the language of the original, either English, French, German, or Italian. The list of the twenty-six papers composing the volume, with the translation of the foreign titles, is as follows:

W. M. Davis	The Development of the Transcontinental Excursion of 1912
A. P. Brigham	History of the Excursion
G. G. Chisholm	Note on the Spelling of Place-Names, with Special Reference to the United States
G. Ricchieri	On the Subject-Matter of Geography as a Science, with Special Reference to Morphographic and Morphologic Description and Terminology (Ital.)
F. Jaeger	Remarks on the Systematic Description of Land-forms (Ger.)
H. Waldbaur	Remarks on Scarp Regions (Ger.)
O. Olufsen	Means of Transportation in Regions of Dry Climate
E. de Margerie	The Debt of Geographical Science to American Explorers
E. Wunderlich	The Geographical Bases of Interior Colonization in the United States (Ger.)
E. Brückner	The Settlement of the United States as Controlled by Climate and Climatic Oscillations
E. de Cholnoky	The Ancient Desert Peoples of North America in Their Relation to the Indigenous Mexican Civilization
F. Nussbaum	Remarks on the Location and Development of Some Cities in the Western United States (Ger.)
E. Oberhummer	American and European Cities (Ger.)
A. Demangeon	Duluth: Its Iron Mines and Its Growth (Fr.)
J. Partsch	The Northern Pacific Railway: The Geographical Conditions of Its Development and Its Activities (Ger.)

O. Marinelli	A Comparison of Italian and American Bad Lands (Ital.)
E. de Martonne	Yellowstone National Park: A Physiographic Sketch (Fr.)
É. Chaix	Some Observations on Two Small Geysers of Yellowstone National Park (Fr.)
K. Oestreich	The Grand Coulee (Ger.)
F. Herbette	The Harbors of the Pacific Northwest of the United States
A. Rühl	San Francisco (Ger.)
F. Machatschek	A Section across the Sierra Nevada, with a Comparison of Block Structure in Central Asia (Ger.)
L. Gallois	Some Notes on Utah (Fr.)
E. von Drygalski	Overdeepening in the Grand Canyon of the Colorado (Ger.)
A. Vacher	The Environs of Phoenix, Arizona, and the Roosevelt Dam (Fr.)
W. Werenskiold	The Surface of Central Norway

With the exception of the papers by Messrs. Ricchieri, Demangeon, de Martonne, Herbette, Rühl, Gallois, and Vacher, which have already appeared in various European geographical journals, all the contributions are original. The majority of the papers are illustrated by photographs, maps or diagrams. Professor Brigham's history contains a detailed itinerary, with map, of the Excursion; a complete list of the European and American members; a set of portraits of the greater number of European members; expressions of opinion by them on the value of the Excursion; and a bibliography of articles, no less than forty-two in number, written by them as a direct result of the Excursion, mainly on topics relating to the United States. An analytical index, which attempts to make accessible, in English, the material of its various languages, concludes the volume.

Thanks to the generous coöperation of the Society's European guests, who have contributed so interesting and so varied a range of topics, the Memorial Volume is a permanent record of the Transcontinental Excursion of 1912.

In due course a complimentary copy will be sent to each European and American member and to the many others who so generously gave of their services; to the various institutions exchanging with the Society; and, as far as the limited edition of 1,000 copies allows, to other interested organizations.

THE NATURAL HISTORY OF ANCIENT VINLAND AND ITS GEOGRAPHIC SIGNIFICANCE*

In the sagas recounting the discovery and exploration by the Norsemen, during the eleventh century, of regions to the southeast of Greenland, whence the Norsemen sailed, three geographic areas were specially designated: Helluland, a rocky and treeless, or by some accounts an ice-mountain area, with many Arctic foxes; Markland, a less mountainous country with forests; and Vinland, south of Markland or in the southern part of Markland.

The name Vinland or Wineland the Good, derived from the finding of *vinber* (literally, wineberry) has been applied by various students of the sagas to regions as remote as Florida and even Greenland itself, while by Nansen it is maintained that, in so far as they mention wineberries and wheat, the sagas are purely mythological. Although the sagas contain much that is purely mythological, the matter-of-fact accounts of the voyages are so direct and without embellishment as to indicate that in the main they are trustworthy historical records; and a study of all the objects of natural history mentioned in them indicates that, when properly identified, they group themselves into a mass of data thoroughly consistent with the geographic account and the one astronomical note.

The principal items coming into consideration are:

VINBER. By all interpretations this is equivalent to wineberry, grape, or *Vitis;* and the natural impulse has been to say that *grapes* in their most exact sense were intended. In America no grapes occur north of southern New Brunswick, thus delimiting Vinland on the north. But in the Middle Ages, the term *grape* and its equivalents, *Vitis*, wineberry, etc., were loosely used by northern writers for any rounded juicy fruit, and even for vines with dry fruits. In Vinland the *vinber* were gathered in winter and grew "wherever there was hilly ground," from which the conclusion is drawn (after examining the claims of twenty-six different fruits which in the Middle Ages were called *grape*) that the Norsemen had in mind not the true southern grape, but the mountain cranberry, *Vaccinium Vitis-Idæa*, which covers the barren hills of Labrador and Newfoundland and is gathered in winter and spring.

MASUR. Commonly interpreted as bird's-eye maple, a form of rock maple, which does not extend northward to Newfoundland. Investigation shows that the *masur* of the Scandinavians is a burl or knob growing on birch trees and used for making bowls. Birch trees extend north to latitude 58° on the Labrador coast.

HVEITI (WHEAT). Long thought to be Indian corn or wild rice, both essentially southern plants; but neither of these look like wheat. On the coast from Iceland and Baffin Land to eastern Maine is a grass closely simulating wheat

* Abstract of a paper read at the joint meeting at New York of the Association of American Geographers and the American Geographical Society on April 10, 1915. Reference should also be had to the review of Hovgaard's "Voyages of the Norsemen to America" in this number.—ED.

and used by the Icelanders as a source of grain. This is strand wheat, *Elymus arenarius.*

FORESTS (MARKLAND). In Markland the Norsemen first came to forests. The northern limit of forests in eastern America is at latitude 58° on the Labrador coast.

BEAR. The Norsemen killed "a bear." To Icelanders and Greenlanders that "is as much as to say a Polar Bear."

EIDER DUCKS. On an island eider ducks were nesting. These are essentially northern birds, perfectly familiar to the Norsemen.

WHALE. They killed a whale, the flesh of which made them all ill. The meat of most whales is good, but one species, the bottlenose whale, has fat which is highly purgative. This species extends from southern Greenland to the Grand Banks, but is very rare on the New England coast (only five records from New England waters).

SKRÆLLINGS. The natives of Vinland were described as using skin-canoes, the characteristic boats of the Eskimo. Other points indicate Eskimo, who reached their southern limit in Newfoundland and on the southern coast of the Labrador Peninsula.

"EYKT" AND "DAGMAL." The shortest day in winter the sun had "eykt" position and "dagmal" position. These observations worked out have indicated, according to varying interpretations, latitudes from 49°–58°. Those who try to localize Vinland in Nova Scotia or New England have been forced to insist that an error of 5° or 10° must be allowed in these observations.

MOUNTAINS. Vinland was a mountainous region. To Icelanders and Greenlanders the 600-foot hills of the coast of Nova Scotia and Massachusetts would not appeal as mountains. The southernmost high mountains on our coast are the Long Range of Newfoundland; and on the eastern coast of Labrador mountains are said to reach altitudes of 4,000–6,000 feet.

To summarize: The significant point is the fact that, if we accept the old interpretations of *vinber, masur,* and *hveiti* as grape, maple, and wild rice, only by the greatest distortion of the statements in the sagas can we bring into coincidence with them other natural features of the region: the Polar bear, the Skrællings, the latitude and the mountains. If, however, the newer interpretation is admitted, that mountain cranberries, birch trees and strand wheat were what the Norsemen really saw in Markland and Vinland, it will be noted that in Newfoundland and Labrador every one of the natural features is satisfied. It is accordingly clear, if we are to search with assurance for traces of the ancient Vinland settlement, that we must visit the coasts of those northern lands; and the strongest efforts should be concentrated upon the Northern Peninsula of Newfoundland, the region of the Straits of Belle Isle, and the region of Hamilton Inlet.

M. L. FERNALD.

COMMERCE AMONG THE ARCTIC COAST ESKIMO*

Stefansson's book, "My Life with the Eskimo," is the best geographic work on the Arctic fringe of North America, if geography is chiefly the study of man's distribution and of his activities in relation to physical environment. No review yet published adequately emphasizes the human geography of this energetic explorer's work. It is therefore a source of real satisfaction to have this paper on Eskimo commerce which summarizes one novel aspect of Eskimo life—the annual and extended migrations for barter.

It is found that the character of Eskimo commerce is determined by (1) the geographic advantages of certain routes of travel, (2) the varying character of the natural resources, and (3) the distribution (and degree of friendliness of the inhabitants) of the peopled areas. The great highway of travel is the sea, not, however, as water for boats propelled by men, but as ice for sleds hauled by dogs. Certain parts of the Greenland coast are about the only localities where the boat completely supplants the sled. Moreover, the summer season is in many places on the Alaskan coast the harvest season, first, because then arrive the caribou, and second and chiefly, because the whales (food, fuel, light) then frequent the coast; while in winter and spring there is plenty of leisure for travel and trade. In addition to the sea, there are the rivers, but they have not played an important commercial rôle save in Alaska and near Hudson Bay.

Two important overland trade routes connect the Mackenzie River and Alaska with Hudson Bay and Baffin Land. One leads from the Arctic coast near Ogden Bay directly south across Back River to the wooded section of the Akilinik between 104° and 106° W. It has an abundance of game and fish and supplies articles of wood to a large section of the mainland coast and the populated islands. A northward continuation of this route extends to the northern part of the Boothia peninsula and a western extension crosses Victoria Island, touches the southern tip of Banks Land and strikes the mainland again at Cape Parry. These routes, with one exception still in active use in spite of the shifting of population due to the white man's influence, are covered entirely by sled except for the stretch between Back River and the Akilinik (pack dogs). Finally, there is the shore route from the mouth of Back River westward to the Mackenzie with a tributary loop southwest toward Great Bear Lake from the neighborhood of Coronation Gulf. This coast route is marked by a continuous chain of ruined houses, graves and broken sleds and paddles.

From Siberia come reindeer skins, jade and other beads, metal articles and tobacco in exchange for buckets, platters, and dishes of wood, oil, and in later times furs also. Some of the Siberian products start eastward to be exchanged for skins of wolves and caribou and stone lamps and pots. The farther east

* Prehistoric and Present Commerce among the Arctic Coast Eskimo. By V. Stefánsson. 29 pp. Map. *Geol. Surv. Mus. Bull. No. 6: Anthrop. Series, No. 3.* Ottawa, 1914.

the fewer the Siberian and other western wares. Some articles may pass from ocean to ocean in a minimum time of two and one-half years; five years are more likely. There is now a break in the route from Cape Parry to Banks Land due to the fact that the western Eskimo began to trade with the Hudson's Bay Company; and fear of the westerners, and ignorance of the route, prevented the easterners from taking the places of the western traders.

The special resources of the various districts are of course the chief basis of this primitive trade. One tribe (Banks Land) lives chiefly on polar bear and musk-oxen. The Copper Eskimo (Banks Land to Back River) live in a region where copper is so abundant that with it they pay for most of their imports. The copper occurs in large, pure and easily worked masses and has stimulated the manufacture of a host of implements and utensils. Practically all the tribes of the copper region visit the wooded country to the south—the long slender northward extensions along the valley floors of the spruce forest belt of Canada. The two chief gathering regions are Bear Lake and the Akilinik valley and both have long exercised a profound unifying influence on the culture of a large part of the Eskimo race, an extremely interesting fact in view of the common ignorance until recent years of these long journeys and "cosmopolitan" gatherings, outside the more characteristic portions of the Eskimo realm. The real significance of the forest excursions of the Eskimo became known only when Stefansson, a few years ago, drifted south with a friendly band. He found that the watchful Eskimos keep to the barren interfluves and seldom make a fire, whereas the Indians and whites from the south keep to the valleys. The Eskimos flee at the first signs of strangers. Except for sleds, few articles are finished—rough-hewn sticks and planks of timber are carried north on their backs if the snows are late, or, as more commonly, on new sleds after the first snowfalls of October. They are gatherers and distributers of wood rather than manufacturers of wooden wares. And the market for wood extends north to the extreme limit of the inhabited districts.

From these circumstances it may be seen that there is ". . . a certain tribal specialization of industries and to a less extent a division of labor among individuals. . . ." Those who live near soapstone quarries make lamps and pots and enjoy a decided advantage, since a finished pot weighs but ten or fifteen per cent. as much as the block that went to make it. One tribe sells a considerable number of copper snow knives. White men's goods come in chiefly from the Mackenzie country and Alaska. Taken with the facts of the Eskimo's daily life and his migrations for game as described in "My Life with the Eskimo," the trading journeys of these primitive people have a degree of interest rarely equaled in geographical science. ISAIAH BOWMAN.

GEOGRAPHICAL RECORD

THE AMERICAN GEOGRAPHICAL SOCIETY

Presentation of the Charles P. Daly Medal to Professor Paul Vidal de la Blache. The presentation of the Charles P. Daly Medal for Geographical Research, which was awarded to Professor Vidal de la Blache by the Council on Jan. 21, took place on June 24 at the residence in Paris of the Hon. W. G. Sharp, Ambassador of the United States to France. A number of the distinguished colleagues in geographical work of Professor Vidal de la Blache were present. Ambassador Sharp made the following remarks in presenting the medal:

"It gives me very great pleasure, Sir, to present to you to-day this medal of gold which has been sent across the waters for this purpose by the American Geographical Society.

"In making this presentation, I feel sure that the precious metal of which it is composed is no more pure or less alloyed than the sentiments of high regard and appreciation which go with it. It is indeed a great thing to be thus honored by a Society whose personnel in my country is so distinguished and whose services in its particular scientific field have given it such a high reputation; but it is nevertheless true that, as distinguished as the Society may be, yet, in bestowing to-day this medal upon you, Sir, it has been greatly honored by your acceptance. It is indeed not at all surprising that this distinction should come to an eminent citizen of a country whose learned men have contributed so much to the broad field of scientific research, and thereby to the advancement and elevation of their fellow men.

"In presenting this medal, therefore, I wish you to believe me when I say that it is an added pleasure to know that it goes to such an illustrious representative of the French people. May your notable work, Sir, and that of your fellow collaborators, continue to grow in usefulness and to add lustre to the science to which you have so many years devoted your life's labor. The development of that science has not only been of great practical value to man but it has increased his admiration for the work of the Divine Architect of the universe."

Professor Vidal de la Blache said in response:

"I am much touched, Mr. Ambassador, by the words which you have addressed to me, and still more than I can say by the character of simple cordiality which you have given to this occasion. I shall be very much obliged if you will kindly convey the expression of my profound gratitude to the American Geographical Society. All of us here know what authority that Society enjoys in the world on account of its publications, its initiative and its scientific activity. I need hardly dwell, therefore, upon the high value to be attached after a life of work to such a mark of distinction bestowed by that institution.

"I hope I may be permitted to remark that in the reward thus accorded to me I discern a mark of sympathy addressing itself beyond my person to the work of intellectual drawing-together which is being carried on by the scientific societies, the academies and the universities of America and France. Between two peoples enamored of a common ideal, no exchange can be more natural and more fruitful, none responds better to our sentiments under existing circumstances.

"Three years ago, one of the most eminent representatives of the science of geography, Mr. William Morris Davis, professor at the University of Harvard, was for six months our colleague at the Sorbonne. Then, scarcely had his course of lectures terminated, scarcely had we closed our note books, than he acted as guide to some of his principal auditors in an excursion through the

American continent organized by the American Geographical Society. Thus could the teaching of the Sorbonne be continued without transition on the plains of Colorado and through the Rocky Mountains. I had not the advantage of being associated with that excursion; but the accounts given by those who participated in it have revived in me recollections of those too short peregrinations which I had the privilege of accomplishing in America; I saw again that grand scenery, I lived over again those hours of reflection and of learned conversation before the scenes which successively presented themselves to my eyes; I found again, more vital than ever, the vision of that American world in which one does not know which most to admire: the immensity of its natural resources, or the human genius which puts them into action.

"Such, Mr. Ambassador, are the impressions evoked and symbolized in my eyes by the medal which you have just delivered to me. It will perpetuate with me and mine our sentiments of gratitude towards the American Geographical Society and the revered name of Charles P. Daly."

Attendance at the Society's Exhibitions. The attendance at the exhibitions given at the Society's house for 11 months ending June 30 was 39,804.

NORTH AMERICA

A New Center of Continental Glaciation. In addition to the two main centers of glaciation east and west of Hudson Bay, Tyrrell now proposes a third (J. B. Tyrrell: The Patrician Glacier South of Hudson Bay, *Congrès Géologique International, Compte-Rendu de la XIIe Session, Canada, 1913*, pp. 523-534). It is southwest of Hudson Bay between the Severn and Albany Rivers and its center is in or near 53° N. and 89° W. The evidence of it is found in the striæ, which seem to radiate outward from this neighborhood. It is suggested that the till deposits from the Patrician center antedate those from the Labrador center. LAWRENCE MARTIN.

Seismological Work in the U. S. Weather Bureau. Seismological work is now being conducted by the Weather Bureau. Congress made no specific appropriation for the work and it was provided that funds appropriated for general meteorological purposes should be devoted to it. The Weather Bureau has been selected to carry on the work not because of any inherent relation between meteorology and seismology but because among the various Federal scientific institutions it was regarded as best fitted for this duty. With about 200 regular and permanent stations manned by trained observers accustomed to the care of delicate instruments, the service has the coöperation of more than 4,000 volunteer observers. A wide distribution of competent observers is necessary for progress both in meteorology and seismology. Professor William J. Humphreys of the Weather Bureau has supervision of the work. Earthquake reports received by the Weather Bureau will be published monthly in the *Monthly Weather Review*. (Condensed from the *Bull. of the Seismolog. Soc. of Amer.*, Vol. 5, 1915, No. 2, pp. 63-65.)

The Navajo Indian in Relation to the State. The relation between the Navajo Indian and the State is one of unusual interest, for this tribe exhibits the phenomenon, rare in the contact of an inferior with a superior race, of numerical increase. Captured by the U. S. Government and removed to Fort Sumner in 1863, the 12,000 Navajos, reduced to little over 7,000, were returned four years later to their old home. Since then they have so increased that the present strength of the tribe is estimated at 28,000 to 30,000 and 31,635 is the actual number given for June 30, 1913. Here the Indian has done what the white man could not have done; he has given to a great area of desert land a population greater and more settled than the white man could have given. With patient industry he has raised his small patches of corn and alfalfa and his flocks, not only in sufficient quantity to support himself, but by the sale of the produce to local traders to establish a steady commercial movement. In 1911 the sale of blankets produced $675,000, of Germantown wool $25,000, of raw wool $465,000, which with the addition of the proceeds

from mutton, hides and pelts would total about $1,250,000. This expansion introduces certain problems in his relationship to the land and the State. To understand the situation it is necessary to distinguish between the Indian of the reservation and the Indian on the public domain.

The law of 1868 made a reservation grant of 3,225,600 acres in the state of Arizona, which was subsequently increased until it now comprises an area of 12,000,000 acres in the states of Arizona and New Mexico. The reservation possesses certain potential resources in the form of timber, valued at $7,500,000, and coal, low-grade in quality but abundant in quantity, valued at $150,000,000; but the grazing and agricultural resources now open to the reservation Navajo are strictly limited and under present conditions the reservation has reached the saturation density of population. Therefore the proposal of certain white residents of the states to confine the whole tribe to the reservation is impracticable; it would simply mean pauperization. Rather is it desirable that the Government should revert to the policy of 1875 and encourage movement to the public domain.

At present the number of Indians resident on the public domain is estimated at 12,000 to 14,000, of whom some 6,000 are Papagos and 8,000 to 9,000, some say less, are Navajos. These are the people directly concerned with the white population. They have suffered much from its hands; the coming of the railroad in the late seventies and the early eighties brought many misfortunes. The railroad company itself acquired large tracts over which the Indian had been free to move. To-day the Santa Fé road owns 1,000,000 acres, 25 per cent. of its original holding, in a zone 40 miles wide on each side of the line. The railroad brought the white stock-raiser, operating on a large scale, and who in various ways, by purchase, by possessing himself of the scantily distributed springs, by violent physical means, has dispossessed the Indian and given rise to the present problem of his support.

As an alternative to the proposed settlement of the whole tribe on the reservation is the allotment of lands on the public domain. Under the last Indian Appropriation Bill, the Indian can only obtain a land title by himself furnishing the funds for the survey and other formalities. And further the area that he can acquire—160 acres—is in many cases wholly inadequate. A satisfactory result can be obtained only by the award of suitable allotments based on a complete survey of the territory and classification of the land. The classification of the land should include divisions as follows: (1) agricultural with irrigation; (2) agricultural with dry farming; (3) pastoral. The Indian who asks for "land, not charity," has signified himself ready to conform to the laws of taxation. Thus is removed the objection, raised by his wealthy opponents, the stock-raisers, of unduly increasing the untaxable land of the state. By such grants the reservation with its restrictive influences would pass away; community habits would be abandoned and the Indian would gradually be adapted to, instead of being swamped by, the processes of modern civilization. (Abstracted from the *Rept. of the Thirty-first Ann. Lake Mohonk Conference*, 1913, pp. 64-84.)

CENTRAL AMERICA AND WEST INDIES

Present Condition of the Active Volcanoes of Martinique, St. Vincent and Guadeloupe. Dr. E. O. Hovey, of the American Museum of Natural History, who has recently revisited these volcanoes, says that the new cone of Mt. Pelé which stands as the monument of the great eruption of 1902-03 nearly fills the old crater and rises some 500 feet above it. Considerable steam is still issuing from the fissures that seam the sides of the new cone, but there are no temperatures exceeding 100° C. (212° F.). The activity of the volcano has greatly and continually diminished since the outbursts of 1902-03, and apparently there is no present danger of recrudescence. Vegetation has reëstablished itself to the summit of the mountain on the east or windward side of the volcano and even the forest is beginning to reassert itself. Sugar plantations on the west side of Mt. Pelé have been reinstated as far as the Roxelane River within the original zone of annihilation. The ruined city of St. Pierre now has a population of about 200 people.

The area around the Soufrière of St. Vincent also shows evidences of recov-

ery from the previous activity. As on Martinique, its vegetation has more fully reëstablished itself on the windward than on the leeward side of the mountain. The interior walls of the crater are coated with moss and tufts of grass.

The volcano on Guadeloupe, unlike those of Martinique and St. Vincent, shows no decrease of temperature over the past. The fumaroles have been active, with varying degrees of strength, during all the historic period of the volcano. The vents maintain to-day the force of their discharge, but the temperature does not exceed 212° F. (Condensed from *Amer. Mus. Journ.*, Vol. 15, 1915, No. 5, pp. 254-255.)

SOUTH AMERICA

Completion of Colonel Rondon's Explorations in Matto Grosso. In a letter dated Cambuquira, Minas Geraes, May 18, 1915, which Col. Roosevelt has kindly placed at the disposal of the Society, Col. Rondon, his recent associate in the descent of the Rio Theodoro, reports the completion of the overland telegraph line linking the Brazilian Atlantic seaboard with the rubber settlements on the Madeira River and, thus, with the whole Amazon region. It was in connection with the construction of this telegraph line, it will be remembered, that Col. Rondon's important expeditions of 1907 and 1909 were undertaken, on the latter of which the headwaters of the river were discovered which was later traced in its whole length by the Roosevelt-Rondon expedition of 1914. The whole line from Cuyabá to Santo Antonio on the Madeira is about 1565 km. (972 miles) long. Of these about 590 km. (366 miles) to Juruena had been constructed at the time of the 1909 expedition; at the time of the Roosevelt-Rondon expedition the line had been carried about 550 km. (341 miles) farther. The completion of the remaining 429 km. (266 miles), down the Gy-Parana to the Madeira, Col. Rondon now reports in his letter to Col. Roosevelt. This work was done in the eight months between May 7, 1914, and the end of the year. Hand in hand with the construction of the telegraph line has gone the building of a road which opens up the territory traversed and, most important of all, the pacification of the Indian tribes. In this phase of his work Col. Rondon reports complete success. In addition, he reports that Lieut. Marques de Souza had been despatched in February of this year to descend the Ananáz River from where its headwaters are crossed by the telegraph road. The Ananáz is thought to be the source of the upper Aripuana, or major right affluent of the Rio Theodoro. If this turns out to be the case, the main arteries of the Theodoro basin will have been explored.

On returning to Rio de Janeiro on April 22 of this year, Col. Rondon reported to the proper authorities and then left for Cambuquira, a watering-place near Campanha, Minas Geraes, where he is preparing the official report and maps of the 1914 expedition. Later he plans to give a lecture on the expedition before the Geographical Society of Rio de Janeiro.

The Celebrated Copper Mines of Chuquicamata, Chile. The fame of Chuquicamata continues to grow apace. With over 300,000,000 tons of ore "in sight," it claims to possess the largest copper deposit in the world (*Commerce Repts.*, July 17, 1915, Washington, D. C.). Although Chuquicamata has enjoyed a favorable situation, close to the oasis of Calama and with railroad communications to Antofagasta and the still nearer port of Tocopilla, its long-known deposits have never been worked on an extensive scale. The reason for this lack of development lies in the low-grade nature of the ore—2.10%—which can only be worked at a profit by modern methods and the outlay of a large capital. In 1903 the production of the whole of the Chuquicamata camp amounted to 18,000 tons of ore; the mill, recently installed by the present exploiters, the Chile Copper Co., will, when completed, have a daily capacity of 20,000 tons. The mill is operated by an oil-consuming power plant located in Tocopilla, the port for the mines. Round the mill has already sprung up a town of some 4,000 inhabitants. It is, of course, of the modern type, well equipped with all essentials for the welfare of the employees and a strange contrast to the miserable collection of canvas tents that, half a century ago, marked the site of a Chilean mining center.

Creation of a Geological Survey in Chile. A state geological survey has just been founded in Chile. Dr. Ernst Maier, professor of geology at the University of Santiago, has been appointed director, and Drs. J. Felsch and H. Brüggen field geologists. A provincial survey had already been organized in 1911, under which important preliminary work was done. General geological maps of the coal districts of Arauco and Concepción and of the island of Chiloë and the Territorio Magellanes have been prepared. Several reports have been published dealing with the coal districts, the coast range and the iron ore districts in the northern part of Chile. (*Der Geologe*, No. 15, Max Weg, Leipzig, May, 1915.)

Origin of the Galapagos Islands. These five larger and ten smaller islands forming an archipelago in the Pacific 580 miles west of Ecuador were believed by Darwin, Wallace, Agassiz and others to be of oceanic origin. Some other writers have held that the presence of the giant land tortoises discovered on the islands is the chief factor on which a former land connection with the mainland can be maintained. Mr. Alban Stewart of the University of Wisconsin, who has been studying the flora of the islands, has published a paper[1] in which he says that his study of the flora of the islands has led him to believe that they are truly oceanic in their origin, but they have been connected at some time in such a way as to form one or more larger islands. He found no evidence, from his study of the flora, that would lead him to believe that a land connection with America had ever existed. In fact, most of the evidence would lead to the opposite conclusion.

With regard to the theory that the presence of the land tortoises seems to indicate that the islands were once connected with the mainland he says that these land tortoises are able to remain alive in sea water for a long period. While collecting on the southwest side of Albemarle Island, a small boat in which two tortoises had been placed was capsized and completely demolished on the rocks. Twenty hours later the lost tortoises were rescued from the sea and had no appearance of having suffered damage. In the early part of the nineteenth century Admiral David Porter wrote that the crews of some of the vessels captured by him had thrown overboard the supply of tortoises which they had obtained on the islands. "A few days afterwards we were so fortunate as to find ourselves surrounded by about fifty of them which were picked up and brought on board." "It can be seen," says Mr. Stewart, "from this, that there is no reason for believing that these tortoises would not be able to remain afloat for weeks or even months without suffering greatly. They always float right side up in the water and if they are inverted immediately right themselves as soon as they are released." They are very tenacious of life and Mr. Stewart quotes Admiral Porter as saying that they may be placed in the hold of a ship for eighteen months without suffering any diminution in fatness or excellence.

Mr. Stewart says that the northern islands of the group lie within the Panama current and pieces of bamboo and cocoanut husks are common constituents of the drift cast up on the shores of these islands. Such a method of transport is thus possible, though he is unable to say whether mollusks, insects, etc., would be able to withstand so long a sea voyage.

EUROPE

Some Phases of Agricultural Conditions in France since the War Began. Data on horses, cattle and wheat are supplied by *La Nature* for July 3, 1915. The requisitioning of horses for French military purposes occurred at the height of the harvesting season and especially embarrassed the beet industry. The disturbance occasioned by the war was slight, however, in districts like Limousin, Massif Central, or Nivernais, where oxen and cows are used in agricultural operations. The present scarcity of horses has led

[1] Further Observations on the Origin of the Galapagos Islands. *Plant World*, Vol. 18, 1915, No. 7, pp. 192-200.

the French to foresee a probable increase in the use of cattle and agricultural machinery after the war.

The importation of refrigerated meat was encouraged to husband the country's resources. It is estimated that about 15,000 tons of cold storage meat, consisting largely of beef, have been imported monthly since the beginning of the year.

About 28,500,000 bushels of wheat were imported into France to make up for the shortage of some 22,000,000 bushels produced in the territory held by the German armies. Ordinarily the 6,000,000 or 7,000,000 bushels imported yearly came from Russia, the United States, Canada and Argentina. Russia is at present unable to export wheat. The supply from Canada and Argentina has been reduced considerably. Practically the United States alone has furnished France with wheat since July, 1914. American wheat is now currently sold at 37 to 39 francs per 100 kilograms in French ports, an increase of about 7 francs over the price of French wheat. In time of peace the difference never exceeds 2.50 francs.

PHYSICAL GEOGRAPHY

A New Determination of Oceanic Evaporation. In an important paper in the *Annalen der Hydrographie und Maritimen Meteorologie* (Vol. 43, 1915, No. 3, pp. 111-124 and No. 4, pp. 169-178) Dr. W. Schmidt of the Vienna Meteorological Office establishes a new value for the amount of oceanic evaporation. An investigation of the dynamic processes of evaporation led to the result that the amount of evaporation on the open ocean as determined by Lütgen is much too large, as it does not take into account the amount of heat accumulated in the atmosphere through the rise of temperature. Schmidt determines the mean height of the daily evaporation of oceanic waters to be 2.07 millimeters, or 76 centimeters (30 inches) a year. The total annual amount of water evaporation from all the oceans would therefore not be 384,000 cubic kilometers, as Brückner and, after him, Fritzsche, assume, but only 273,000 cubic kilometers (65,500 cubic miles). Assuming, as heretofore, the water vapor which goes over upon the land surface to be 30,640 cubic kilometers (7,350 cubic miles), the rainfall over the oceans then amounts not to 353,360 cubic kilometers but to 242,360 cubic kilometers (58,200 cubic miles), or an amount corresponding to a precipitation of 69 centimeters (27 inches). The total amount of rainfal over both land and sea, according to Dr. Schmidt's determination, is equal not to 465,300 cubic kilometers but only to 354,300 cubic kilometers (85,000 cubic miles). Thus values are established for the economy of the hydrosphere which differ considerably from those previously accepted. A control of these figures from the geographic standpoint is much to be desired. (W. Halbfass in *Geogr. Zeitsch.*, Vol. 21, 1915, No. 6, p. 355.)

Scientific Work on Ice Patrol Steamers. The cutters *Seneca* and *Miami*, which are patrolling the Grand Banks along the steamship lanes to detect icebergs and ice flows and warn vessels of these dangers, carry four scientific men to make special scientific investigations. The Bureau of Fisheries is represented by Harold W. Nightingale, who is observing temperatures and salinity of the water at various depths and studying the direction and velocity of currents. Biological collections, particularly of those animals which are carried by currents, are being made and will be studied by specialists after the material has accumulated. (*Daily Consular and Trade Reports*, June 28, 1915.)

PERSONAL

Mr. E. C. Andrews of the Geological Survey of New South Wales is preparing a work of some 700 pages on the origin of the Australian flora. The work will be in part geographical and in part botanical.

William H. Dall of the U. S. Geological Survey and the Smithsonian Institution and Otto H. Tittmann, recently Superintendent of the U. S. Coast and Geodetic Survey and now President of the National Geographic Society, received the honorary degree of Doctor of Laws at the recent Commencement of George Washington University.

Dr. William E. Lingelbach, Professor of Modern European History in the University of Pennsylvania, has been elected President of the Geographical Society of Philadelphia.

Mr. Frank A. Perret, the vulcanologist, has returned to Italy after a holiday trip home. He will resume his studies on Mt. Vesuvius and at other centers of volcanic activity.

Mr. J. B. Tyrrell of Toronto was elected President of the Geological Section of the Royal Society of Canada at the annual meeting in Ottawa in May.

OBITUARY

The Society regrets to announce the death, on May 30th last, of His Excellency Señor D. Marcelo de Azcárraga y Palmero, President of the Royal Geographical Society of Madrid.

As this number goes to press, the Society learns, to its deep regret, of the death on July 31, at the age of fifty, of Dr. A. J. Herbertson, Professor of Geography at the University of Oxford. An estimate of what this loss means to geography, and particularly to the advance of the subject in the English-speaking world, must be deferred to a later issue.

GEOGRAPHICAL LITERATURE AND MAPS

(INCLUDING ACCESSIONS TO THE LIBRARY)

BOOK REVIEWS AND NOTICES

(The size of books is given in inches to the nearest half inch.)

NORTH AMERICA

Guidebook of the Western United States. Part B: The Overland Route, with a side trip to Yellowstone Park. By W. T. Lee, R. W. Stone, H. S. Gale and others. 244 pp. Maps, ills. *U. S. Geol. Surv. Bull. 612*, Washington, 1915.

In the excellent booklets on our National Parks, the Survey has already set a high standard in descriptive popular writing. In the first of the "Guide Books" it has gone further and for the education of the railway traveler on the "Overland Route" has prepared a monograph that through map and photograph and text explains the landscape, sets both its geographic and its historic past before him and reveals its relation to the great regions of the West.

An increasingly large number of thoughtful and observant travelers journey over the four great railway lines that are covered by these guides. The meaning of the topographic features which they see is rarely revealed by a cursory glance; an explanatory handbook is required that carries the reader beyond the seen to the unseen. The professional geographer and geologist will derive from these guides even more satisfaction than the layman. It is safe to say that they will be the most commonly used books of their class among American travelers in the United States. They deserve almost unlimited praise for their high professional character, their originality of treatment, and their painstaking attention to the traveler's point of view. It should be an easy transition from this project to the cherished plan that the Survey prepare high-grade educational monographs on the various natural regions of the United States. The returns would be intellectual, not material, but they would ultimately far exceed in value the mineral resources of the whole country.

It is in a measure unfair to review a book from a standpoint explicitly not taken by the author. Yet the publications of the Survey are produced by a highly trained technical staff and we therefore venture in a spirit of pure friendliness to point out what seem to us to be a few blemishes which we hope not to see repeated in the later volumes of this series.

It tries the patience of most readers to pass over several pages of interesting description, lay the book aside, recall the next day the subject of a theme and be quite unable to find it. The index includes railway stations only. There are literally thousands of facts which the student can not find again except by most laborious and unnecessary search. An analytical index is really essential.

While in general the maps are beyond criticism, two of them strike us with surprise. Figure 4 is that now somewhat antiquated map representing the centers of ice accumulation and the limits of ice dispersal in the glacial age. That misleading phrase ". . . the area covered by *the* Pleistocene ice sheet at its maximum extension . . ." [italics ours] expresses precisely the idea which is so hard to eradicate from the popular mind. That the "Map of North America, showing distribution of land and sea in Upper Cretaceous (Benton) time" is not included in the list of illustrations on page 237 and that it has no number (both mechanical details) does not disturb us so much as the marvellously truncated Greenland! Mylius-Erichsen gave up his life to "put on the map" that corner of the great island. To one who has read the

tragic story of his expedition there is pathos in the thought that seven years after his sacrifice his discovery should continue to be neglected (See *Bull. Amer. Geogr. Soc.*, Vol. 41, 1909, pp. 23-25). Greenland runs eastward to 12° west of Greenwich; it is represented as terminating on 20° west.

Finally, where is the Overland Trail?

Yosemite and Its High Sierra. By John H. Williams. 147 pp. Maps, ills., index. John H. Williams, San Francisco, 1914. $1.50. 10 x 7.

A short descriptive and historical account of the Yosemite National Park. The author's love for the region is convincingly and eloquently expressed as he tells of its canyons, ravines, peaks and forests, its waterfalls and lakes. The volume contains over 200 splendid illustrations in half-tone, including eight full-page color-plates. These views, selected from hundreds of photographs, professional and amateur, are particularly fine in portraying the beauties of the "surprisingly neglected" High Sierra back of the Yosemite Valley. Especially enjoyable are the pages devoted to the charms of the valley of Hetch Hetchy, and also the chapter on the gigantic sequoias. In all, it is a most attractive and interesting volume and is a noteworthy addition to Mr. Williams' well-known and popular series concerning the scenery of the American Northwest. To visitors who would know the glories of California and to any who would "see America first," this brief account cannot fail to be of value.

To the geographer, the large number of views embracing a wide vista are of special interest. Where scenery and geological structure are so patently related, the nature-lover's eye is bound to be held by the same landscapes which attract the student of earth forms: the requirements of both are met by such admirable illustrations as the view east from Glacier Point (p. 30), the views of the Yosemite Valley on pp. 47 and 57, and the view on p. 75 which, with its plastic sense of distance, strikingly brings out the relation of the valley trough to the plateau upland.

On Sunset Highways. A Book of Motor Rambles in California. By Thos. D. Murphy. 376 pp. Map, ills., index. The Page Co., Boston, 1915. $3. 8½ x 6.

Not all of California's roads are of ideal quality, but the state, and especially the southern part of it, is a motor paradise, if that ideal is anywhere realized. The author has not written a guide book, but he has finely reflected by description, by his beautiful monotones and his reproduction of paintings in color, much of the charm of this favored land. His book gives many impressions of the country that are not revealed by glimpses from car windows.

By-Ways Around San Francisco Bay. By W. E. Hutchinson. 184 pp. Ills. The Methodist Book Concern, New York, 1915. $1. 8 x 5½.

A little book, recording the writer's outings amid the wild natural grandeur surrounding San Francisco Bay. The glory of the sunset, and the witchery of moonlight, appeal to him, and move him to little versified preludes to some of his chapters. Camera and pencil attended his roamings in the wild, and form a tasteful setting for his booklet. Forest, mountains, stream and sea-shore, and the sea-bottom viewed from a glass-bottomed boat, all ministered to his enjoyment. Trout-fishing in the creeks and wanderings through Chinatown were the opposite poles of his vacation days. DAVID H. BUEL.

The Winning of the Far West. A history of the regaining of Texas, of the Mexican War, and the Oregon Question; and of the successive additions to the territory of the United States, within the Continent of America, 1829-1867. By Robert McNutt McElroy. x and 367 pp. G. P. Putnam's Sons, New York, 1914. $2.50. 9½ x 6½.

This book was suggested as a sequel to Theodore Roosevelt's "Winning of the West." It chronicles the events which led to the acquisition of Texas, Oregon, New Mexico and California, and Alaska by the United States. The author has had access to many documents, and in some of the details, notably Andrew Jackson's attitude towards Houston's campaign for Texas, he has

brought to light some interesting facts. His assertion that the record of the expansion of this nation "is singularly free from violence and fraud" and "an achievement in which every citizen of the Republic may feel an honest pride" is correct and when his criticism is severe, as it is against President Polk's actions towards Gen. Taylor, the reader is convinced that a broad view of the situation demands it. A great deal of action by diplomatists at Washington and by soldiers and pioneers in the field is compressed in the volume so that the treatment is brief and at times superficial. The book does not discuss any of the underlying causes for which the geographer is always on the look-out; on the contrary, it is rather a summing up of documentary evidence.

ROBERT M. BROWN.

Flora of the Southeastern United States. Being descriptions of the seed-plants, ferns and fern-allies growing naturally in North Carolina, South Carolina, Georgia, Florida, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, and in Oklahoma and Texas east of the One Hundredth Meridian. By John K. Small. 2nd edit. 1394 pp. Index. The Author, New York, 1913. $4. 10 x 7.

The second edition of this bulky work by the Head Curator of the Museums and Herbarium of the New York Botanical Garden was published ten years subsequent to the first edition. The main content of the manual is given on the title-page. The known geographic distinction of each species is noted and the usual flowering-period is given, except where the plants bloom throughout the year. The arrangement is essentially that of Engler and Prantl. The book is made helpful to the student by the inclusion of analytic keys of the families, genera and species. The typography is of the same clearness and neatness that marked the first edition. If the book had been printed on thinner paper it would have been much more convenient for the field botanist and student.

JOHN W. HARSHBERGER.

American History and Its Geographic Conditions. By Ellen Churchill Semple. 2nd edit. First ed. in 1903. 466 pp. Maps, index. Houghton Mifflin Co., Boston, 1913. $1.60. 7½ x 5.

A most admirable book on the geographic environment of the United States at the successive stages of its history, with especial emphasis on the spread of settlement over our continent.

Commendable use has been made of the instructive, but little studied maps by the United States Census of distribution of population for successive decades. They have marked application as diagrams of the advancing frontier, and their great defect, that cities have been eliminated from their population numbers, is here of little moment. The work is one of industry and real learning and it deserves to be widely read and studied. It is full of interest. Miss Semple has sought and found real geographic controls for a multitude of events in our history, that are thereby correlated and brought into intelligible relation. She is fond of figurative language; the American privateers were "gadflies that stung, preyed upon, and almost stampeded English commerce." The banks of Newfoundland "pasture the finny heads of the sea." "When the commercial and maritime drama of Europe was shifted from the stage of the Mediterranean to the Atlantic, those nations who had front seats got the most out of it." But there is abundant insight; our railroads have outstripped those of all other countries because of our long distances, our simple continental build, allowing long, smooth stretches, while our political oneness favored operation in vaster systems than elsewhere.

The Everglades put the United States not 100 but 300 miles from Cuba. No continent to-day shows the political variegation seen in the Antillean archipelago.

American sea-power developed because New England was a half barren coast half way between productive England and the productive Southern States and the West Indies. Presumably the decline of our sea-power had causes that were less geographic. The closing chapters on the United States in relation to the Mediterranean and Pacific should have been rewritten. It is not to the point to-day to read that the United States must regard herself as

committed to the project of a canal at Panama, nor that only 46 miles remain to complete the trans-Andine railway. The use of the volume by students is facilitated by an excellent index. MARK JEFFERSON.

The Voyages of the Norsemen to America. By William Hovgaard. xxi and 304 pp. Maps, ills., index. The American-Scandinavian Foundation, New York, 1914. $4. 9½ x 6½.

This monograph is very complete in the presentation of the basic material upon which must rest all discussion of the Viking voyages to the American continent. Prof. Hovgaard cites all the pertinent passages from every version of the sagas and subjects them to skillful critical analysis, and he is particularly successful in extricating from the incongruities of the chief narratives the references to distinct groups of voyages which in the course of transmission by oral recitation had become interlaced. The elaboration of this hypothesis yields a reasonable and altogether consistent series of narratives. There is much to admire in the author's treatment of one of the most baffling incidents in the narrative of Leif's voyage, the reference to the length of the day in Vinland. Following Geelmuyden's interpretation that here we have a crude astronomical observation of azimuths at sunset and sunrise at the summer solstice, this observation having been worked out as representing a latitude of 49°55′, Prof. Hovgaard subjects the observation to a discussion as to crudity of the methods then possible. He presents Geelmuyden's determination as amounting to no more than a mean value and establishes the range as between 40° and 50°, corresponding to the coast line between Sandy Hook and Halifax. Applying within these limits the familiar data of phytogeography presented in the sagas, he establishes the site of Vineland at Cape Cod, this astronomical determination corroborating the the determination independently deduced from other data. The most valuable quality of this monograph is that it rests upon the author's professional familiarity with the problems of such navigation and seamanship as was possible in Iceland about the year 1000. WILLIAM CHURCHILL.

Three Industrial Nations. An industrial geography of England, Germany, and the United States. By Lydia R. Blaich. 366 pp. Maps, ills., index. American Book Co., New York, 1915. 64 cents. 7½ x 5½.

The British Empire, Germany and the United States are the three nations. These divisions are discussed in some detail in the hope that more can be accomplished than by any endeavor to cover the whole world. The language is simple, direct, clear and pleasing.

The author begins her book in an attractive manner. By tracing the source of the household furnishings, going from one room to the next, she succeeds in opening up at once a whole world vista before the eyes of the child. In Chapter 2 a general survey of the land is made and in Chapter 3 the ocean is considered. The fourth chapter treats with "Man's Development of the Resources of Land and Water" and the rest of the book is devoted to the respective nations. The book "assumes that man's industrial activity . . . . is the chief subject of study in geography."

England is introduced with the question "How does England maintain her high rank in industry and her supremacy in commerce?" Germany is brought on the scene with the question "What factors have contributed to Germany's industrial rise from sluggishness and poverty to a high place among the great nations?" And the United States makes its appearance with the question "The United States is the industrial peer of the German and British Empires: what causes have contributed to her rapid development, and along what lines has this advancement been made?"

This volume deserves a leading place among the supplementary readers that attempt to cover similar ground. EUGENE VAN CLEEF.

In the Land of the Head-Hunters. (Indian Life and Indian Lore.) By Edward S. Curtis. 110 pp. World Book Co., Yonkers, N. Y., 1915. $1.20. 8½ x 5½.

This book deals with the American Indians on the Pacific Coast of northern British Columbia, between 1774 and 1791. The declamatory style of the tribal

bards is used in telling the story, which is of tribal love, war, and the coming of the white man. The plot was first written for a motion picture scenario; and the book is now well and graphically illustrated, evidently with photographs from the photo-drama. The story is of interest.

WILBUR GREELEY BURROUGHS.

Canada and the British Immigrant. By Emily P. Weaver. xiv and 312 pp. Map, ills., index. The Religious Tract Society, London, 1914. 3s. 6d. 8 x 5½.

An excellent book, careful in the selection of facts that give a general idea of the Dominion as a whole and of each of the provinces in more detail. The author has the British immigrant in view in every chapter. She writes much of resources and opportunities and does not neglect mention of disadvantages, for "Canada is no earthly paradise but only a good land and a large, where there is scope for many types of human beings to develop physically, mentally and spiritually, as some of them have not room to do in the crowded centers of population in the Old World." The literary quality of the work and the importance of all the facts mentioned make the volume very readable.

Guide Books for the Excursions of the 12th International Geological Congress in Canada, 1913. No. 1: Eastern Quebec and the Maritime Provinces, Part 1, 207 pp.; Part 2, pp. 211-407. No. 2: The Eastern Townships of Quebec and the Eastern Part of Ontario, 142 pp. No. 3: The Neighborhood of Montreal and Ottawa, 162 pp. No. 4: Southwestern Ontario, 142 pp. No. 5: Western Peninsula of Ontario and Manitoulin Island, 108 pp. No. 6: Vicinity of Toronto, Muskoka [Lakes] and Madoc [Area], 68 pp. No. 7: Sudbury, Cobalt and Porcupine, 150 pp. No. 8: Toronto to Victoria and return via Canadian Pacific and Canadian Northern Railways, Part 1, 101 pp.; Part 2, pp. 105-274; Part 3, pp. 277-386. No. 9: Toronto to Victoria and return via Canadian Pacific, Grand Trunk Pacific and National Transcontinental Railways, 164 pp. No. 10: Northern British Columbia and Yukon Territory and along the North Pacific Coast, 179 pp. Maps and ills. in each. Guide Books Nos. 1, 2, 3, 4, 5, 8, 9 and 10 issued by the Geological Survey of Canada, Ottawa, 1913. Nos. 6 and 7 issued by the Ontario Bur. of Mines, Toronto. 8 x 5½ each.

The guide books describe routes throughout nearly all accessible parts of Canada and a portion of Alaska. The material is presented as general descriptions and annotated guides. The first consists of short summaries of the geological and geographical features of each district, written by men who had worked there. Many descriptions, however, represent not merely summaries of older surveys, but the results of work done especially for the guide book. Considerable areas in the west were surveyed in preparation for the excursions. Illustrations are abundant, and also small maps, largely in the text (153 maps, 41 diagrams and sections).

The annotated guides describe the features to be seen from steamer or train between scheduled stops. Judging by the writer's experience, this form of guide was of little value. Route maps are also included, showing the geology along the line of travel. Bibliographies of the principal works on the geology of each district are also given. The scope of the entire series of guide books being so great, only one typical book is here briefly summarized.

Guide Book No. 10, "Excursions in Northern British Columbia and Yukon Territory and along the North Pacific Coast," describes the longest excursion. That from Vancouver to Prince Rupert and thence up the Skeena River to "the head of the steel" on the new Grand Trunk Pacific Ry. is treated by R. G. McConnell, who describes the geology, ore deposits and scenery. Beyond Prince Rupert the route is described by F. E. Wright. The route is cut by fiords which owe their peculiar topographic form to glacial erosion. This inland part of the excursion from Skagway to Dawson is described by D. D. Cairnes, who discusses the general features of geology, climate, flora and fauna. The final part of the volume is given to the region of Yakutat Bay and was written by Prof. Lawrence Martin.

F. T. THWAITES.

La Géographie de Terre-Neuve. Par Robert Perret. Préface de Marcel Dubois. vi and 372 pp. Map, ills. E. Guilmoto, Paris, 1913. Fr. 10. 9 x 6.

A carefully prepared and authoritative volume devoted to the various phases of the physical and economic conditions of Newfoundland. The excellent inclusive bibliography, the constant reference to literature, obvious and obscure, and the personal knowledge of first-hand facts all show scholarly preparation and deep knowledge on the part of the author. The illustrations are well chosen and reproduced in attractive form. The geological map is clear and helpful.

An interested reader will find in this volume all he needs to know about the facts of Newfoundland, presented in lucid form; and yet the volume is a bit disappointing, for consequential and minor parts are presented with little perspective. The volume may be said to be descriptive rather than explanatory in character. Modern geography calls for an interpretation and not for a compend of information. The author has seen clearly and fully and has recorded his observations and other knowledge carefully, and yet he has not brought out the real vital geography of Newfoundland.

As a source book on a little known and very appealing small country the volume is more than satisfactory; it is a necessary handbook.

RICHARD ELWOOD DODGE.

AFRICA

Histoire Ancienne de l'Afrique du Nord. Par Stéphane Gsell. Vol. 1: Les conditions du développement historique. Les temps primitifs. La colonisation phénicienne et l'Empire de Carthage. 544 pp. Index. Hachette et Cie., Paris, 1913. Fr. 10. 10 x 6½.

This volume is initial to a most ambitious project of writing the history of North Africa through the epoch of the Vandals and the Byzantines, a project for which Professor Gsell is particularly fit. The first volume carries the record from the most primitive times down to the colonization period of Phenician culture out of which arose the empire of Carthage, which is to form the theme of the second volume. We make but passing note of his skill in the interpretation of the Stone Age relics and the examination of the several theories offered in explanation of the many problems of Punic expansion in the Mediterranean, for these themes are more especially to be considered by the anthropologist and the historiographer. The first book concerns itself exhaustively with the problems of the geography of the Barbary States, the plant and animal life. Upon this theme considerable research is now current and we may expect a mass of new data. Professor Gsell's summation of all that is known, together with his skillful interpretation of data of various sources and character, will serve as a very satisfactory standard wherewith to correlate the newer studies of desert and oasis now in progress. He draws the conclusion that the climate of the past can have varied but slightly from that which rules at the present, that the evidence of greater humidity at any period of human occupancy is of no more than mediocre value, and that the change in fauna and flora needs no such explanation.

WILLIAM CHURCHILL.

Intervention and Colonization in Africa. By Norman Dwight Harris. (Series: World Diplomacy, Vol. 1.) With an introduction by James T. Shotwell. xviii and 384 pp. Maps, index. Houghton Mifflin Co., New York, 1914. $2. 8 x 5½.

A systematic, readable and informing work, the most scholarly and best compendium we have seen of European expansion in Africa, the efforts of the Powers to turn their colonies to good account, the nature of the administrations under which the colonies have been placed, the various factors which have helped or retarded the work of progress, trade conditions and development and effects upon the natives of the European occupation; with footnotes giving official and other first sources of information, a bibliography of secondary sources, statistical tables, sixteen good maps, colored, or black and white, and an index.

Die Erschliessung Afrikas durch Eisenbahnen. Von F. Baltzer. 36 pp. Map. D. Reimer (E. Vohsen), Berlin, 1913. Mk. 1. 9½ x 6½.

A short and able paper showing what has been done thus far in the development of African railroad systems. The accompanying map gives the present status of railroad construction.

L'Œuvre Française au Maroc. Avril 1912–Décembre 1913. Par René Besnard et Camille Aymard. x and 254 pp. Map. Hachette & Cie., Paris, 1914. Fr. 3.50. 7½ x 5.

A statistical work in French, dealing with the results of French occupation and influence in Morocco during the eighteen months, following March 30, 1912, when the treaty between the French Republic and the Sultan of Morocco was signed. The work is divided into three books, the first dealing with the organization of the French Protectorate, the second treating of the economic results of the French occupation, and the third describing the social work of France in Morocco. It is stated that the result of the treaty between France and Spain, by which Spain's ancient rights in Morocco were recognized by granting a Spanish sphere of influence on the Moroccan littoral, has resulted in disorder and anarchy in the Spanish sphere, while peace and order reign in the area of French rule. The governmental organization of French Morocco is based upon native laws and customs. High praise is given to the Senegalese levies, doing police duty. In all, the army of occupation consisted of 80,000 men. European immigration into Morocco is shown to have resulted in profitable land speculation. A marked increase in navigation, commerce, imports and exports has sprung up under French occupancy. Agriculture also has been improved and stimulated by European colonists. Social effort in Morocco is largely centered in public instruction in French and native schools, in loan agencies at the service of the farming population and in the organization and equipment of medical and surgical service for the benefit of the natives, who previously had no such care. An administrative and military map is supplied and a table of contents without an index.

DAVID H. BUEL.

Three Years in the Libyan Desert. Travels, Discoveries, and Excavations of the Menas Expedition (Kaufmann Expedition). By J. C. Ewald Falls. Translated by Elizabeth Lee. xii and 356 pp. Ills., index. B. Herder, St. Louis, Mo., 1914 [?].

This is a translation of the German account of the expedition of Monsignor Kaufmann and his cousin Mr. Falls which led to the rediscovery of the tomb of St. Menas and the early Christian city in which it was situated in the Libyan Desert to the northwest of Cairo. This discovery was made on July 11, 1905, and for two years the excavations were carried on and the walls, pillars, streets, stone dwellings, monastery and tomb of the Christian priest were brought into view. The work was done by Beduins of the desert and the author tells much of their characteristics and manner of life. The book has no map and the ruins are not noted in the latest edition of the Andree Handatlas; as the text is not at all definite, we can only conclude that the excavated town is somewhere between the Natrum Valley and Cairo.

A Woman in the Sahara. By Helen C. Gordon. xiv. and 354 pp. Ills. F. A. Stokes Co., New York, 1914. $1.50. 8½ x 5½.

These chapters are pen pictures of life and nature from near the Algerian coast to Constantine and down into the desert to Tougourt and Oued Souf. The author's companion was an artist especially intent on painting Arab interiors. One of her fine paintings, an Arab girl, forms the frontispiece. The value of the book is that it gives excellent characterizations of the life and customs of the people in town and country, in mountain and desert, without detail that would weary the popular reader; and the geographical environment of the varied peoples is described with the same light touch. The last chapter is one of the most interesting. It tells the story of that gifted Russian girl, Isabella Eber-

hardt, a child of misfortune, whom fate led to the desert edge and whose literary genius revealed the enchantment of the African desert as no other pen has ever done.

The Gateway to the Sahara. Adventures and Observations in Tripoli. By Charles W. Furlong. Enlarged edit. xxx and 363 pp. Maps, ills., index. Charles Scribner's Sons, New York, 1914. $2.50. 8½ x 6.

The book begins with a brief sketch of Tripolitania from the earliest times to the present. Next comes a description of modern Tripoli and of the customs and industries of the people; a view of the inhabitants of the oases and tablelands of Tripolitania; an account of the Greek sponge divers off the Tripoli coast; a description of the esparto industry, esparto being a grass from which paper is made; the story of the burning of the U. S. Frigate *Philadelphia* in 1804, and of the author's discovery in 1904 of the wreck of this vessel below the waters of Tripoli harbor; a narration of some of the author's adventures during a trip with Arabs over 200 miles of the Sahara, including a night's ride with Arab bandits; and a description of the camel and of the caravans of the Sahara, of the routes they traverse and of the desert itself. A concise history of the Turko-Italian War, its causes and results, is given. The author ventures some interesting predictions concerning the future of the country.

WILBUR GREELEY BURROUGHS.

From the Congo to the Niger and the Nile. An Account of the German Central African Expedition of 1910-1911. By Adolf Friedrich, Duke of Mecklenburg. Vol. 1: xvi and 241 pp. Vol. 2: xi and 285 pp. Maps, ills., index. The John Winston Co., Philadelphia, 1914. $9. 9½ x 6½.

This English translation of the record of the Duke of Mecklenburg's second great expedition in tropical Africa is most heartily to be welcomed. To make scientific studies in large regions the expert staff was assigned in small detachments to various districts of tropical west and central Africa. Captain von Wiese und Kaiserswaldau passed through the region from the Mobangi River to Lake Chad and, in the three chapters in which he records this journey, adds new information to that reported by earlier French explorers. The Duke of Mecklenburg deals in three chapters with Lake Chad, Bagirmi and the journey to Garui via Lai. He found the Chad islanders by no means dangerous savages, as they have been described, and says many islands have never been visited by a European and that all the available maps are very unsatisfactory. Ernest M. Heims describes his journey from Lake Chad to the Niger, on which he was accompanied by several other members of the party. Captain von Wiese und Kaiserswaldau also contributes Chapters 10-13 on the sultanates of Bangassu and Rafai, Semio's country and the Bahr el Ghazal. The most important chapters on the whole are in the second volume: Dr. H. Schubotz's account of his journey from Fort Archambault to the Nile (Chapters 14-18), passing through the country of the Mangbettu cannibals, made famous by Schweinfurth and Junker; and the German Congo and South Kamerun (Chapters 19-26) described by Dr. Arnold Schultze, much of this region being practically a virgin field for explorers. For many other important details of this very valuable work the reader is referred to the review of the German edition (*Bull.*, Vol. 46, 1914, No. 2, pp. 140-141).

Quer durch Uganda. Eine Forschungsreise in Zentralafrika 1911/12. Von Rudolf Kmunke. xii and 186 pp. Maps, ills. D. Reimer (E. Vohsen), Berlin, 1913.

This book describes the exploration of a hitherto unknown part of northeastern Uganda between Mt. Elgon and Gondokoro on the Nile, to which point the river steamers from Khartum ascend. Mr. Kmunke's purpose was to bring to light one of the still unknown areas. From Nairobi he had intended to go north as far as Lake Rudolf, adding to the work of Teleki and others. He found, however, that development work was in progress along the proposed route and that the government of British East Africa is sending monthly mails from Nairobi to Lake Rudolf. He therefore went on to Entebbe, the port of Uganda

on Victoria Nyanza, and thence made a detour to the northeast, north and northwest, finally reaching Gondokoro and a steamer for Khartum. His explorations were well made and well worth while. His book contains a detailed map of his ascent of Mt. Elgon and of the vast expanse of its crater. For most of the way to the northwest of Elgon he broke new ground through the East African steppe and grasslands. He is the first to give an account of the Natua, Tobur and Kamjuru tribes. He brought home considerable collections illustrating flora, fauna and native handiwork. He had a good scientific and photographic outfit with the result that his surveys will add important detail to our maps. It was his own private enterprise, though costing much money; and Mr. Kmunke is to be congratulated on the gap he has helped to fill in Central Africa and the handsomely illustrated and interesting book he has produced.

Laite's Commercial Blue Book for South Africa. 1914. A Practical and Comprehensive Book of Reference on South African Trade. Compiled and edited by W. J. Laite. 591 pp. Map, index. South African Publishers, Ltd., Cape Town, 1915. 3s. 6d. 8½ x 5½.

This book will be useful to all who are closely concerned with the industrial and commercial activities of the Union of South Africa. It gives concisely a great variety of economic information. It is the fullest compendium published of the facts and figures relating to the trade of the Union. Many of the articles are of much interest also to geographers and the public generally, such as the papers on afforestation, land settlement, meteorology and climate, game lands, the present status of irrigation, cost of living, wages, manufactures, etc. It contains a good map, on a large scale, showing railroads and the distribution of minerals, live stock and farm products. It is expected to issue the book annually.

ASIA

Travel and Politics in Armenia. By Noel and Harold Buxton. With a contribution on Armenian history and culture by A. Raffi. xiv and 274 pp. Map, ills. The Macmillan Co., New York, 1914. $1.50. 7½ x 5.

The gradual shifting of Near Eastern problems to Asia Minor makes this book timely. A remarkably accurate impression of the Armenian upland may be derived from these descriptions. The insertion of travel and historical sketches under the same cover affords insight into existing conditions and their former setting.

With the Russian Pilgrims to Jerusalem. By Stephen Graham. x and 306 pp. Map, ills. The Macmillan Co., New York, 1913. $2.75. 9 x 6.

"The journey of the Russian peasants to Jerusalem," writes Mr. Graham, "has never been described before in any language, not even in Russian. Yet it is the most significant thing in the Russian life of to-day. In the story lies a great national epic.

"All the year round, in twenties and fifties, the pilgrims trickle to Jerusalem, and every year at Christmas and in Lent they come in great numbers. It is entirely a matter of the peasants; there are no clean middle or upper class people there at all. Fortunately, the dirt, the hardship, and the strict Lenten fare are an insuperable obstacle for the sightseers and the merely curious.

"But why does the peasant make the pilgrimage? . . . I asked many pilgrims the question and some could not answer, some would not. They knew not why they came, some force deep in them urged them—a force much deeper than their power of articulation."

Thus, in order to see and understand the pilgrimage, one must become a pilgrim. Mr. Graham became a pilgrim. With the Russian peasant pilgrims he journeyed in disguise, to all appearances one of themselves. He experienced all their hardships and joys. He was one of them, one among 7,000 pilgrims at Jerusalem.

Mr. Graham tells of his pilgrimage, of the people whom he met, of the reli-

gious rites and ceremonies performed at the Holy City and throughout Palestine, made sacred by Jesus Christ. The charm of his style alone would make the book of value. Numerous photographs and two maps showing the route of the pilgrims complete a work of much interest. WILBUR GREELEY BURROUGHS.

Reisen und Forschungen im westlichen Kleinasien. Von Dr. Alfred Philippson. I. Heft: Einleitung—Das westliche Mysien und die pergamenische Landschaft. 104 pp. II. Heft: Ionien und das westliche Lydien. 100 pp. III. Heft: Das östliche Mysien und die benachbarten Teile von Phrygien und Bithynien. 129 pp. Maps and ills. in each. *Ergänzungshefte Nos. 167, 172 and 177, zu Petermanns Mitteilungen.* Gotha, 1910, 1911, 1913. Mk. 12 each. 11 x 7½ each.

This book is an admirable summary of present geographical and geological knowledge of the extreme western part of Asia Minor. It is a book of travel in the sense that it gives consecutive accounts of the author's many journeys, but it also contains valuable summaries which enable the reader to obtain a general view of the various small districts into which the author divides the country. Professor Philippson has devoted many years to the countries bordering on the Ægean Sea. He is primarily interested in geology, and as he takes the reader from place to place he gives a large amount of geological detail. To this, however, he adds abundant notes on land forms, and a considerable amount of information on crops, products, and various other matters. It is safe to say that from the purely geographical point of view no work has yet been published which gives such full and exact information on this particular part of the Turkish Empire. The region discussed is historically of much importance, for on the borders of its deep fiords, on the floors of its waste-filled valleys, and among the mountainous islands of its coast the ancient Greeks developed their great Ionian civilization. Geologically as well as historically one of the chief problems is the relation of western Asia Minor to the Greek islands and to Greece itself. Professor Philippson shows how the fault system and other structural features of the eastern Ægean extend out into the sea and over toward Greece. One of the most valuable features of his book is an excellent geological map of a region hitherto known but slightly. ELLSWORTH HUNTINGTON.

The Holy Land of Asia Minor. The Seven Cities of the Book of Revelation, their present appearance, their history, their significance, and their message to the church of to-day. By Rev. Francis E. Clark. xx and 154 pp. Charles Scribner's Sons, New York, 1914. $1. 7½ x 5.

Largely an informing and interesting record of the author's personal experiences and conclusions, especially in the western part of Asia Minor where Paul, Timothy, John, Mark, Irenæus and Polycarp made their toilsome way and where "Christianity received its earliest development as a universal religion."

A Syrian Pilgrimage. By John B. Ascham. 203 pp. Ills., index. The Methodist Book Concern, New York, 1914. $1.25. 7½ x 5.

A clergyman's account of his tour of Palestine in 1913. He had the advantage of making the trip with the American School of Oriental Research. The author's descriptions and impressions are thoughtful and informing. The book has no map of Palestine or plan of Jerusalem, though every reader should have them before him. The author says:

"There is but one way to see Palestine. The tourist who cannot ride horseback and sleep in tents; who cannot suffer thirst, hunger, and fatigue; who is unable to endure extremes of heat, rain, and cold; whose health demands a Western diet—will not be able to obtain a comprehensive view of Syria. There are few carriage roads in Palestine. No adequate impression of the land is obtainable by carriage. The traveler must submit to the inconveniences of a camping tour, or he will return from the Holy Land with partial and misformed conceptions of the country and people."

Through Siberia, the Land of the Future. By Fridtjof Nansen. xvi and 478 pp. Maps, ills., index. F. A. Stokes Co., New York, 1914. $5. 10 x 7½.

The name of the author is a guarantee that the book is worth reading. The first part of the trip was by sea, Norway to the Yenisei River and up the river to Krasnoyarsk; and the second part was by train, Krasnoyarsk to Khabarovsk, Vladivostok and return. The first part was another attempt to open up regular trade connection with the interior of Siberia by way of the Kara Sea and the Yenisei. Dr. Nansen was a guest of the company that sent out the vessel; and, as he was free from responsibility, he had leisure to note the passage of events. So we have his observations and reflections on the physical features of the Polar Sea, his journeys ashore, the native tribes and a vast store of secondary matters.

The steamer reached its destination on the lower Yenisei on time and a transfer was made to a lighter bound for Yeniseisk. The account of the voyage up the river gives a remarkable cross section of Northern Siberia, while the stop at Yeniseisk and the drive to Krasnoyarsk offer a good opportunity for a picture of the sedentary Siberian and the native city life.

The rail journey is reported carefully, and although the country has been opened to the reading public through many sources, yet this account differs from the others, as Dr. Nansen presents Siberia as a colonial possession. The change of recent years, from Siberia as a prison to Siberia as a colony, will surprise many. East of Lake Baikal, the problem becomes a different and a more difficult one; here the author considers the questions which the Russian Government must solve, such as the protection of travelers and colonizers from brigands, the relations with the Chinese Government and the Chinese people who have settled within the Russian boundaries, and the great task before Russia along the Pacific.

There is no better way for the stay-at-home to gain a fresh and invigorating knowledge of the earth than to read journals of reliable travelers. Dr. Nansen's book, which shows Siberia in a new and interesting light, should be a boon to a large number of readers. ROBERT M. BROWN.

India of To-day. By E. C. Meyse-Thompson. 230 pp. Map, index. Smith, Elder & Co., London, 1913. 6s. 9 x 6.

A member of the British Parliament with his wife makes the tour of India that had been mapped out for the Prince of Wales. His object is to get a first-hand knowledge of the causes of the so-called "unrest" in India. He finds that India is inhabited by many peoples differing in language, customs, and religion; that British rule has brought to these diverse peoples the *Pax Britannica*, the reign of law and order and equality before the law. Still he sees that the tiller of the soil is oppressed by the farmer of taxes, the money lender and the landlord. While earnest efforts are made to lessen the evils of periodic famine, owing to crop failure through lack of rain, still starvation stares the people in the face when the monsoon fails. Moreover, the government has not brought literacy within the reach of the masses. It would seem from the writer's account that the bringing of content to India would necessitate adequate provision against crop failure by storage of food supply for lean years; and a widespread irrigation system which would store water and obviate complete dependence on the yearly rainfall. It would further require the freeing of the small farmer from the grasp of the tax-gatherer and the money lender; also the complete opening of the civil service to competent natives. DAVID H. BUEL.

Colloquies on the Simples and Drugs of India. By Garcia da Orta. New edition (Lisbon, 1895) edited and annotated by the Conde de Ficalho. Translated . . . by Sir Clements Markham. xxi and 509 pp. Index. H. Sotheran & Co., London, 1913. 2£ 2s. 9 x 7.

Sir Clements Markham, in producing this translation, has rendered valuable service to the early period of the history of modern geography. Orta was the first Portuguese visitor to India who had, in any degree, the spirit of

the man of research and such scientific training as could be given by the Spanish universities. The principal theme is a discussion of the *materia medica* of India and the identification of the various remedial agents recorded by Galen as the fount of all medical knowledge. But this by no means is all that interests. Orta spent thirty-six years in India in the practice of his profession. He traveled widely along the west coast and into Ceylon and his geographical comments, though sparing, are entertaining in the simplicity of the ancient school. Orta is best remembered as the author of the theory that the forbidden fruit of Eden was a banana and not the apple of Genesis.

WILLIAM CHURCHILL.

Le Turkestan Russe. Par A. Woeikof. xii and 360 pp. Map, ills., index. A. Colin, Paris, 1914. Fr. 8. 8½ x 5½.

Professor Woeikof has given us an excellent example of a type of book which is fortunately on the increase. As the result of a few months' visit to Russian Turkestan he does not write a mere traveler's tale, but a carefully planned volume which gives due weight to all the various phases of geography. His style is attractive, and his arrangement everywhere logical. If a given subject is treated in more than one place, he refers from one to the other, and thus in every way makes his volume easy to use. He begins in the usual way with chapters on the physical features of the country, then passes to a general description of the inhabitants, and from that to regional descriptions. Finally, he devotes the last third of his space to special problems such as irrigation, agriculture, land tenure, cotton-raising, vineyards, communications, and colonization. History, and the manners and customs of the people receive relatively little attention. The future, however, is always in the writer's mind, and he has much to say about methods of improving and developing Turkestan. He glories in what has already been done, and feels confident that great things are in store.

Throughout the book there runs a note of optimism which may perhaps be justified, but which the reader should constantly bear in mind. The author's attitude is summed up where he says that "dry countries with irrigation are the countries of the future." Russian Turkestan has more irrigated land than any other country except India and the United States. It has large rivers, such as the Amu-Daria, which are as yet only imperfectly utilized. Russians can live and prosper there, hence we may look for great things. This attitude leads to certain opinions which are open to question. For instance, much is made of the fact that along the railroad the planting of vegetation has almost checked the movement of blowing sand. The author gives a list of the types of vegetation which may be expected to succeed one another and convert the desert into steppe or pasture-land if only the process of growth is once artificially started. He fails to note that before the building of the railroad there had been a dry period lasting several decades. When the process of checking the sands by means of vegetation was first vigorously begun in 1896, unusually wet conditions prevailed, and this has, on the whole, been the case almost to the present time, as is indicated by the rising level of the Sea of Aral. In the same way he urges that the hillsides be reforested, although the small areas already planted have cost the prohibitive sum of about $180 per hectare ($70 an acre), and still involve expense. The same attitude of mind makes him intolerant of the idea of greater aridity now than in the past. He believes in large climatic oscillations between the end of the glacial period and the beginning of historic times, and minor oscillations lasting about a century during the historic era. He summarily rejects the reviewer's hypothesis of longer pulsatory changes, but the context suggests that he has studied it only through the French or Russian works of its critics, and that he does not realize how slightly it differs from his own position.

ELLSWORTH HUNTINGTON.

India: Its Life and Thought. By John P. Jones. xvii and 448 pp. Index. The Macmillan Co., New York, 1915. $1.50. 8 x 5½.

An attempt to interpret to the western mind the life and thought of the Orient, as found in India, during an experience of thirty years as an evangelical missionary. The opening chapter on the unrest of India will probably prove most

interesting to the general reader. The view is advanced that Great Britain will grant self-government to India, as soon as that country proves capable of exercising it successfully. In the meantime the spread of western education among the younger generation in India must inevitably produce irritation and dissatisfaction with the paramountcy of England. The various religious cults of India are well explained, the caste system is discussed and condemned, the Hindu religious book, Bhagavad-gita, is described, the popular forms of Hinduism are made clear, and a comparison between the Buddha and the Christ is instituted. An optimistic view is adopted of the future prospects of Christianity in India, but the outstanding admission remains, that after six centuries of effort, 2,500,000 of the 315,000,000 of India have been brought under Christian influence.

DAVID H. BUEL.

The History and Economics of Indian Famines. By A. Loveday. 163 pp. Index. G. Bell & Sons, London, 1914. 2s. 6d. 7½ x 6½.

This enlargement of the original essay which won the Le Bas Prize in 1913 finds a point of view slightly different from that in the multitudinous literature covering India. After outlining the history of famines in India, the agricultural and industrial changes during the last century are discussed. The balance between the artificial and the natural factors influencing the conditions of the country is carefully considered.

It is worthy of note (p. 99) that "it is difficult to find evidence that over-population in India is a reality." Furthermore, drought is declared not an effective check where in particular localities there may be a tendency toward over-population. The extension of railroad lines has proved a decidedly important factor in reducing the catastrophes heretofore associated with drought, for they make possible rapid transportation of food to the affected areas as well as efficient distribution of the affected people to the untouched areas.

Industries are affected by drought as vitally as agriculture and the importance of better government protection of these industries is emphasized. A critical discussion of the means for the relief of the people, with subsequent results, shapes the general problem of the author. An appendix of explanatory notes accompanies the text.

E. VAN CLEEF.

The Big Game of Central and Western China. Being an account of a journey from Shanghai to London overland across the Gobi Desert. By Harold F. Wallace. xviii and 318 pp. Map, ills., index. Duffield & Co., New York, 1913. $4. 9 x 6.

A narrative of a journey, taken primarily to obtain, for the British Museum, specimens of the takin, a goat-like antelope, ranging from Shanghai along the southern and western edges of the Gobi Desert to Omsk in Siberia. The emphasis is placed naturally on stalking game and excellent descriptions of the manner and difficulties of the hunt are given. In addition to the takin, wild sheep, the serow, the wapiti and gazelle are studied in detail. The drawings of the animals by the author add to the value of the book. While hunting, Wallace has his eyes and mind directed only on the chase, but during the long journies between stalks, he has caught many phases of the life of the people and of the land of his travels. So the book contains descriptions of isolated mountain villages, of desert and mountain scenery, of traditions and customs and of political practices. The book gives a good cross-section from the Pacific to Central Asia. ROBERT M. BROWN.

Ceylon: The Portuguese Era. Being a History of the Island for the Period 1505-1658. By P. E. Pieris. Vol. 1: xxvii and 590 pp. Vol. 2: ix and 628. Maps, ills., index. The Colombo Apothecaries Co., Colombo, 1914. $7.50. 9 x 6.

Two introductory chapters give the essential preliminaries of the history of Ceylon before the arrival of Europeans. From this beginning the narrative occupies two large volumes with a very comprehensive study of the little known establishment of Portuguese power in Ceylon from November, 1505, when the

fleet of Dom Lourenço found refuge from storm at Galle, to the final date of June 23, 1658, when the Dutch celebrated the removal of the Portuguese. This was the great era, yet it was working out through petty channels of policy; great colonial empires were coming into being, but the makers of empire had no thought beyond the charm of adventure, the establishment of trade, the spread of the church among the heathen. Records of these events are scanty at best; they seldom show the greater movements; it is necessary to subject them to close scrutiny in order to establish the value of their trivial reports. Such work has been accomplished by the author. He has examined an enormous amount of reports of merchant adventurers and pious friars, and from the mass he has extracted a very smoothly developed history of a period in the life of Ceylon which had been neglected. To this work he seems to have brought peculiar qualifications, not the least of which is his enthusiasm for the two civilizations with which he is ancestrally associated and his regard for the final peace of the British Empire which has given the opportunity for all the tangles of culture in Ceylon to reach full development. WILLIAM CHURCHILL.

Het Daghet in den Oosten. Door Henri Borel. viii and 228 pp. Ills. L. J. Veen, Amsterdam, 1910. 11½ x 8.

This work is of deeper value than the mere travel record which is its first attraction. The author has traveled to the points which bear upon the destiny of China now as they have done for ages. His particular theme is the spread and the depth of the feeling crystallized in the phrase "the East for the Oriental." Truly competent observers of the life of Asia are agreed that Asia must ever remain Oriental, its culture must continue a thing apart. The administration of the Asiatic by races of greater rude strength, the political complex which may change the map of Asia, these are a thing extraneous, forced upon a people whose peculiar character it is that force breaks upon the strength of their non-resistance. The present phase of this extraneous force is the development of Japan and its unconcealed zeal for the hegemony of the Far East. Borel examines this movement, he see the possibility of its temporary success on the surface, but he sees, as well, the strong groundwork of the ancestral morality of the Chinese peoples and he sees that it has endured through many superficial changes to a continuance of its ultimate triumph. WILLIAM CHURCHILL.

Japan, Today and Tomorrow. By Hamilton W. Mabie. ix and 291 pp. Ills. The Macmillan Co., New York, 1914. $2. 8 x 5½.

A practical interpreter of things inward, possessed of a charm of literary style, like Dr. Mabie, cannot fail to interest when he endeavors to explain the national traits of the Japanese people and its tendencies in the present and the future. The national genius of Japan is portrayed as consisting in a passionate devotion, unto death, to the Mikado, as embodying the national spirit. The peculiarities of Japanese character are held to be merely superficial, and not so basic as to make complete assimilation with the nations of the West impossible. The intense and brainy devotion of the Japanese to hard work is thought to be a marked asset in the struggle for world supremacy among the nations. Anthropologists will, no doubt, agree that the tendency of modern inventions, which spread broadcast the knowledge of the habits and happenings of the various nations of the world, is to obliterate national peculiarities and to produce an international similarity of ideas and views. Count Okuma, the Prime Minister, makes a plea for Japan, able, smooth and plausible, but which has withal an air of special pleading. DAVID H. BUEL.

Japan to America. A symposium of papers by political leaders and representative citizens of Japan on conditions in Japan and on the relations between Japan and the United States. Edited by Naoichi Masaoka. xii and 235 pp. G. P. Putnam's Sons, New York, 1914. $1.25. 7½ x 5½.

A collection of thirty-five detached papers, more or less brief, by representative Japanese, endeavoring to interpret Japan to the people of the United

States and to remove misunderstanding on our part. The Japanese mission is stated to be the interpretation of the Orient to Occidentals; the lesson it has to teach is that the Yellow Race is not inferior to the White. The real character of the Japanese people is to be "an immediate attendant on the Creator." It is claimed that Japan and the United States have common political and financial interests; that Christianity must stand or fall in the Orient as it makes progress, or fails in Japan. An Imperial Edict is held to take the place of any moral sanction in education. DAVID H. BUEL.

Thirty Years in the Manchu Capital. In and around Moukden in peace and war. Being the recollections of Dugald Christie, edited by his wife. xiv and 303 pp. Map, ills., index. McBride, Nast & Co., New York, 1914. $2.75. 9 x 6.

The experiences and observations of a resident missionary at Mukden. The author has collected impressions which depict first the old China and then the China of to-day as expressed in the series of events which led to the political revolution. The book covers an interesting period and the writer has made good use of his opportunities. The climatic conditions of Mukden are described in a clearer and more scientific manner than in most books of this kind. After depicting the conditions of life and the attitude of the people of Manchuria towards foreigners, during the early years of his residence, the author prepares the way for the years of change when the Chino-Japanese war, the Boxer uprising, the Russo-Japanese war and the revolution held the center of interest.

In each case the war is not the theme and sidelights of the war only are introduced, but the effect of the war upon the people of the district and the rapid changes which took place during the last fifteen years of the author's residence in Mukden are in strong contrast to the stable government of the first fifteen years. ROBERT M. BROWN.

Java et ses habitants. Par J. Chailley-Bert. 4th edit. cxlvii and 330 pp. A. Colin, Paris, 1914. Fr. 5. 7½ x 4½.

The literary history of the Dutch empire in the East Indies has always been written by partisan pens, either voicing the protest of the unofficial settlers and the generally acrimonious complaints of the great mass of the population which is neither all Dutch nor all Malay but an unfortunate combination of both without the rights of either, or else employing the most brilliant pens to be found in official life to set forth the conditions of the islands as falling little short of paradise. Chailley-Bert's work in its first edition took immediate rank as the most authoritative review of the situation in Java, critical without animus, accurate in essentials, a standard text. In fifteen years it passed through three editions and now appears in a fourth edition. This leaves the former text practically without change, but there is a preface nearly half the size of the former volume in which are presented the changes which have been brought to pass in the last fifteen years. Those who feel that the Javanese have shown a capacity for intelligent administration of certain of their inner affairs will be glad to see in this new matter a cordial recognition of the earnest efforts of Ernest Douwes Dekker to continue the work of Multatuli. WILLIAM CHURCHILL.

AUSTRALASIA AND OCEANIA

Australia from a Woman's Point of View. By Jessie Ackermann. xiv and 317 pp. Ills., index. Cassell & Co., Ltd., New York, 1913. 6s. 8 x 5½.

This book is a running commentary on the social, political, industrial, economic and geographic conditions of Australia, in which the author gives a very human and intimate account of Australian life.

That the British public and other nations are not yet fully impressed with the enormous wealth and resources of this land is shown when we are told that

150,000,000 people could be sustained on the country's products, but that only 4,500,000 persons are there to avail themselves of the abundance of actual and potential resources. The tremendous hardships of building up this great country are thrillingly pictured in accounts of heroic deeds of the "back-blocks," settlers of the far interior or "Never-Never Land," who have vast distances to contend with, frequent droughts or floods, sand storms, and bad roads over which they must carry their goods; in fact, pioneers in every sense, these people have struggled on, and to-day their children are the progressive heirs to a fine future and it is their heritage to make it a "living land." The fascination of a new land, no matter how hard the toil, is ever present with the Australians. The author tells how the Government saved the mining industry of a community in Western Australia by expending over $3,000,000 in building a reservoir which drains a mountain range and supplies 16,000 square miles with water where before "gold was so cheap and water so dear." She gives the results of a close study of the capital and labor question and depicts keenly the politics of Australia and its blunders. The statement that while the birth-rate of Australia is less than formerly, the rate of infant mortality is also less, shows what education and progress have accomplished there. Miss Ackermann backs up her statements with statistics. In a book so full of good material it is a pity that the subject-matter has not better grouping.

The Climate and Meteorology of Australia. By H. A. Hunt. Maps, diagrams. Reprint, *Federal Handbook of Australia Bull. No. 9*, pp. 121-162. Bur. of Meteorology, Melbourne, 1914.

We have had occasion several times recently to call attention to the excellent meteorological publications of the Australian Commonwealth, Bureau of Meteorology. As a reprint from the Handbook issued in connection with the recent Australasian meeting of the British Association, we now have a very clear and systematic account of the climate of Australia. The opening sentence is an indication of the crisp, clean-cut style of the whole report: "Until recent years, Australia was regarded by most people as a land especially subject to severe droughts, and by more generous critics as a land of a feast or a famine." Mr. Hunt has given the essential facts of Australian weather and climate concisely. The human relations are kept in view throughout and the illustrations are pertinent and instructive. R. DEC. WARD.

The Conquest of Mount Cook and Other Climbs. An Account of Four Seasons' Mountaineering on the Southern Alps of New Zealand. By Freda du Faur. xv and 250 pp. Ills., index. Charles Scribner's Sons, New York, 1915. 10½ x 7½.

In one of the earlier chapters of Miss Du Faur's book she quotes a theory of her guide, Peter Graham, on the best way to train a novice into a full-fledged mountaineer. Certainly, if Graham's theory is exemplified by Miss Du Faur's climbs in the New Zealand Alps, there is no doubt as to its correctness. During her four seasons in those mountains, beginning with the easy climbs of Mt. Sealy and the Nun's Veil and ending with the first traverse of Mt. Sefton, she accomplished almost all that previous mountaineers had attempted, adding besides seven virgin peaks. Her complete traverse of Mt. Cook is probably the most difficult piece of work accomplished in that region.

The main interest is distinctly mountaineering. The author never permits you to forget that she is a woman and that her thesis is that a woman can accomplish as difficult climbing as a man. More than once one feels a suppressed chuckle at the discomfiture of a less successful male mountaineer. And certainly in view of what she accomplished Miss Du Faur has a right to her chuckle and a hearty assent to all she claims for a trained woman's ability as a mountain climber. In these feminist days her point of view is to a sympathetic reader both acceptable and delightful.

The book is well and profusely illustrated. Occasionally dotted lines on the illustrations indicate climbing routes, thus adding greatly to the clearness of the text. The style is entertaining and on closing the reader has a very fair knowledge of the topography of the region. C. S. THOMPSON.

The Cruise of the "Janet Nichol" among the South Sea Islands. A Diary by Mrs. Robert Louis Stevenson. x and 189 pp. Map, ills. Charles Scribner's Sons, New York, 1914. $2. 8½ x 5½.

Anything relating to Robert Louis Stevenson cannot fail to be of interest. Mrs. Stevenson's diary of a cruise in a tramp steamer among the South Sea Isles is most interesting. The diary was jotted down from day to day, with a view to furnishing material for a romance by Stevenson, which in fact was never written. The course of the cruise was from Sydney, Australia, to Auckland, New Zealand, Samoa, Manahiki Island, the Gilbert and Marshall Islands, the New Hebrides, and New Caledonia, back to Sydney. The natives of the South Sea Islands are shown to be children of nature, open, indolent, cheerful. Leprosy, elephantiasis, and anæmia from a low diet are common. Half-castes and white men living with native women come into view, faithful to them, and preferring starvation to separation from their families. Admirers of Stevenson are indebted to his wife for this new book. DAVID H. BUEL.

EUROPE

Things Seen in Sweden. By W. Barnes Steveni. xv and 254 pp. Ills., index. E. P. Dutton & Co., New York, 1915. 75 cents. 6 x 4½.

An English tourist's record of his trip through Sweden. It gives quite an exhaustive description of the various provinces and places of interest in Sweden and of the various peoples who inhabit it. Town life in Sweden, as seen in Stockholm, receives a special chapter. An account of Lapland and its inhabitants also finds place. There are chapters on Swedish sport, the Swedish army and navy, and notable men and women of the country. The half-tones of Swedish scenes and of Swedish people are of the highest grade and lend further interest to the booklet. DAVID H. BUEL.

Ten Years near the Arctic Circle. By J. J. Armistead. 252 pp. Ills. Headley Brothers, London, 1913. 3s. 6d.

Mr. Armistead is carrying on, among the fisherfolk on islands off the coast of Norway, a mission work similar to that of Dr. W. T. Grenfell along the coast of Labrador. From island to island, Mr. Armistead, accompanied by his family, sail in their boat the *Red Cross*, caring for the sick and injured, and preaching the gospel. The author relates his varied and exciting experiences. He tells of the life of the people, of the privations they undergo, and of the urgent need to relieve their suffering, in time of sickness or accident, by means of adequately equipped hospitals, trained nurses and physicians, on the more remote islands; for, until a comparatively recent date, sickness and accident to the islanders had gone for days untended, there being no physicians within ready call. But as a result of the author's endeavors to better this condition, permanent hospitals have been erected and competent medical attendance provided on some of the islands. Churches also have been established, the people being eager to attend. The book is well illustrated and well worth reading.

WILBUR GREELEY BURROUGHS.

Résumés des Cahiers No. 1 jusqu'à 9. Udgivet af Generalmajor V. H. O. Madsen. 48 pp. Den Danske Gradmaaling, Ny Raekke, No. 10. Copenhagen, 1912. 11 x 9.

In order to facilitate the reading of its new series of publications, the Danish "Gradmaaling" has issued résumés in French of the nine volumes issued to date. Future volumes will have similar résumés.

The contents of these nine volumes are as follows: (1) summary of work accomplished by previous director and linking up of triangulation nets of Denmark and Sweden; (2) determination of relative intensity of gravity on various islands (since 1904 an improved Sterneck apparatus, made by Fechner of Potsdam, has been used, and former inexplicable sources of error eliminated); (3, 8) precise levels in Jutland; (4) leveling across the Straits; (5, 6, 7) twenty-three determinations of latitude, Horrebow's method, and eighteen after Sterneck's

program (Sterneck's program was adopted for the later observations to expedite the work and gave satisfactory, though less exact, results than the older method); (9) determination of Danish mean sea-level and comparison with Prussian and Swedish datums. JAMES GORDON STEESE.

English Travelers of the Renaissance. By C. Howard. xvii and 233 pp. Ills., index. John Lane Co., New York, 1914. $2.50. 9 x 6.

At the close of the sixteenth century travel became the fashion as the only means of acquiring modern languages and modern history, as well as the accomplishments and social graces by which a young man won his way at Court. Many books were therefore written for intending travelers. Clare Howard says that these books, "taken in chronological order outline for us the life of the traveling student.

The author expresses the hope that a survey of these works will be useful to students of literature, will show in a new light English society in the sixteenth and seventeenth centuries, and will aid in the interpretation of the great works of literature dealing with those times. The book is to be commended.

WILBUR GREELEY BURROUGHS.

France and the French People. (The Nations of the War Series.) Edited by L. G. Redmond-Howard. 167 pp. Sully & Kleinteich, New York, 1914 (?). 50 cents. 7 x 5.

This book is a volume in the "Nations of the War" series and bears the publishers' announcement that it is "up to date;" yet no date, whether of publication, or copyright, or printing appears anywhere between its covers. The work is a popular account of the origin and history of the *Ancien Régime* in France; of Modern France, its politics and religion, its language and literature, its trade, commerce and economics, its constitution, its ambitions and ideals, its character and spirit. DAVID H. BUEL.

Rouen: Étude d'une agglomération urbaine. Par J. Levainville. 418 pp. Maps, ills. Armand Colin, Paris, 1913. Fr. 7.50. 9 x 5½.

A wealth of information about Rouen past and present, historical rather than geographical. Certainly no European city can be understood without an account of its history. Rouen was placed at the ford nearest the mouth of the Seine at the head of navigation. To-day both roads and railroads cross the river farther down and, although the Seine has been dredged to three meters at Rouen, the deep sea ships mostly stop at Havre. Levainville's account shows that the city grew as long as the old conditions dominated and has since become of secondary importance. But this is not explicitly referred to its cause in the change of conditions. Levainville's Rouen reaches out into the world to find food for its increasing numbers and raw material for its factories. There is the alternative of a Rouen that was so enterprising and reached out so far with her goods that she prospered and increased in size. The city that just grows and has therefore to feed itself is not geographic. Only cities that do feed themselves abundantly can grow. The checks to progress have come of politics and the rivalry of fitter places in supplying Rouen's markets.

What are the actual modern conditions of Rouen? Has it a system of sewers and running water? Apparently not, but there is no definite statement, nor about the system and cost of tramway transportation or of street lighting. But the book does contain a great deal of interest. MARK JEFFERSON.

The Spell of Flanders. An outline of the history, legends and art of Belgium's famous northern provinces. By Edward Neville Vose. 517 pp. Map, index. The Page Co., Boston, 1915. $2.50. 8 x 6.

The author's travels in Flanders began in May, 1914, and ended in the opening month of the war. In this intimate picture of Flemish life and land the reader will see the country as it was before the war. Many of the monu-

ments described are now in ruins. The account of rambles between Dixmude and Ypres are now particularly attractive, for the same sights can never meet the tourist's gaze again. LEON DOMINIAN.

Germany since 1870. By George M. Priest. xvi and 199 pp. Maps, index. Ginn & Co., New York, 1915. $1.25. 7½ x 5½.

An historical handbook, emanating from Princeton University, and designed as an introduction to the history of Modern Germany. Its aim is to make clear the complexities of German state and national life, and to divest the narrative of the mass of detail, which has been included by historical writers in their account of Germany. Covering the period from the accession of Frederick the Great and Maria Theresa down to the present moment, it puts in the hands of the historical student a compact and condensed, yet scholarly account of the rise and development of present-day Germany. Of necessity, the narrative is largely taken up with wars, campaigns and treaties of peace, especially in the early years of the period, although literary, philosophical, and artistic movements are briefly, yet clearly described. The work obviously calls for the re-telling of the rise, success, and fall of Napoleon, as they brought about the fall and rise of German nationality. In the more difficult part of the work, the unraveling of the diplomacy and responsibility of the Franco-Prussian war of 1870, and the present conflict, an impartial and historical fairness is observed, credit being given and blame apportioned where it properly belongs. DAVID H. BUEL.

German Sea-Power: Its Rise, Progress and Economic Basis. By Archibald Hurd and Henry Castle. xv and 388 pp. Map, index. Charles Scribner's Sons, New York, 1913. 9 x 6.

In a study of the sea-power of Germany the consideration of its economic basis is of paramount importance. The present British Chancellor of the Exchequer has pointed out this importance by his recent pronouncement that the issue of the present European war would depend upon the ability of the contending parties to procure the last £100,000,000 to finance the struggle. The elements upon which the economic strength of a nation depends are rightly shown to be the number and character of its population and of its natural resources. This study, written from an English point of view, contrasts conditions in Germany with those in England. Statistics are adduced to show that Germany's birth-rate is decreasing less rapidly than that of England, while its emigration is decreasing more rapidly. While this may be true, other statisticans have given figures to show that England, Germany and France have reached the maximum of their birth-rate and are now tending to a mimimum, while Russia and the other Slav peoples are tending toward their maximum birth-rate to such an extent that, at a time which can be determined, Russia will be able to have more men under arms on land and sea than all the rest of Europe combined. It is shown that in the quality of its population Germany shows a relatively high rank. With regard to the natural resources upon which sea-power depends, such as coal, iron, oil, potash, and phosphorus, Germany is shown to hold an unusually favorable position. The conclusion is finally reached that there is no reason to doubt that in a century Germany will be better able to maintain and increase her sea-power than any other European country. What effect the present war will have upon this conclusion is problematical. DAVID H. BUEL.

Die Marschbildungen an den deutschen Nordseeküsten. Eine bodenkundlich-landwirtschaftliche Studie. Von H. Gruner. iv and 155 pp. Maps, ills. Paul Parey, Berlin, 1913. Mk. 7. 10 x 7.

A painstaking and thorough account of the origin of the marshes along the German North Sea coast with much detail of their physical and chemical composition as well as their crop adaptations. The importance of water supply adjusted to plant needs is recognized. The work is such a mass of detail that it badly needs an index to make it accessible, for general conclusions are hardly reached. MARK JEFFERSON.

München als Industriestadt. Von Carl Fritz. 163 pp. Puttkammer & Mühlbrecht, Berlin, 1913. 9 x 6.

The desirability of detailed studies of American cities is again emphasized by this publication. The place of a city in its country's affairs and in relation to the commerce of the world can be nicely summarized in such a discussion as is here presented.

The attraction of Munich for travelers of various kinds, its character as a place of residence and as a center for art, introduce the treatise. This is followed by an analysis of the labor employed to support the industries and subsequently the industries themselves are treated in detail. Special chapters are devoted respectively to the printing industry, the arts, including interior decorating and the like, brewing, machinery and iron. A final chapter covers a large group of miscellaneous industries. In all cases, a brief history of the industry in Munich is followed by its present status. Each is interpreted in relation to other industries and to the citizens. Many interesting facts mark the book. For example, as early as 1847 Munich built steamboats for the Danube River and the small lakes near the city such as the Chiemsee, etc. Beer has made Munich world-famed although its art ranks equally high. In fact beer has been instrumental in spreading the knowledge of its supremacy in art. The first small brewery was operated in 1158. EUGENE VAN CLEEF.

Cavour and the Making of Modern Italy. 1810-1861. By Pietro Orsi. (In series: Heroes of the Nations, edit. by H. W. C. Davis.) xix and 385 pp. Map, ills., index. G. P. Putnam's Sons, New York, 1914. $1.50. 7½ x 5½.

A life of Cavour necessarily entails the telling again of the story of the formation of the Kingdom of Italy out of a number of petty states with divergent interests. The work of the national heroes, Victor Emmanuel, Cavour, Mazzini, and Garibaldi, in effecting Italian unity, is broadly sketched from the sympathetic viewpoint of a loyal adherent of the monarchy. In describing the career of a world figure like Cavour within the confined limits of the popular "Heroes of the Nations" series it was of course impossible to go into much detail. It is plain that the popularity of the Italian Monarchy with the great mass of the Italian people is greater than the Curialists have ever dared to admit in public. DAVID H. BUEL.

OTHER BOOKS RECEIVED

These notes do not preclude more extended reference later

NORTH AMERICA

BEGINNINGS OF THE AMERICAN PEOPLE. By Carl L. Becker. xii and 279 pp. Index. Houghton Mifflin Co., Boston, 1915. 7 x 5.

CENTRAL AMERICA AND WEST INDIES

THE CRUISE OF THE CORMORANT. By A. Hyatt Verrill. 322 pp. Map, ills. Henry Holt & Co., New York, 1915. $1.35. 8½ x 5½. [A book for boys in which much information about the Lesser Antilles is woven into the story of a cruise among the islands.]

THE HANDBOOK OF JAMAICA FOR 1915. Comprising historical, statistical and general information concerning the island, compiled from official and other reliable records. By Joseph C. Ford and Frank Cundall. viii and 636 pp. Map, index. Govt. Printing Office, Jamaica, W. I. 9 x 6.

SOUTH AMERICA

BRAZIL (1913). By J. C. Oakenfull. 604 pp. Maps, ills., index. Pan American Union, Washington, 1914. 7½ x 5.

INDIANERLEBEN: EL GRAN CHACO (SÜDAMERIKA.) Von Erland Nordenskiöld. viii and 343 pp. Map, ills., index. Albert Bonnier, Leipzig, 1912. $3.65. 9 x 6½.

AFRICA

DIE ANSIEDELUNG VON EUROPÄERN IN DEN TROPEN. 3. Teil: Natal, Rhodesien, Britisch-Ostafrika. Von M. S. Evans, Dr. Hardy und Dr. Karstedt. (Schriften des Vereins für Sozialpolitik, Vol. 147.) 162 pp. Duncker & Humblot, Leipzig, 1913. Mk. 4.20. 9 x 6.

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NEW MAPS

EDITED BY THE ASSISTANT EDITOR

For system of listing maps see p. 75 of this volume

SOUTH AMERICA

Bolivia. Sketch Map to illustrate the Explorations of Major P. H. Fawcett, R.G.A., in 1913-14. 1:3,000,000. 11° - 19° S.; 69° - 60° W. Accompanies "Bolivian Exploration, 1913-1914" by P. H. Fawcett, *Geogr. Journ.*, Vol. 45, 1915, No. 3, pp. 219-228.

[The map is a preliminary one, based on Major Fawcett's previous surveys and his more recent prismatic compass traverses. The recent surveys seem to relate mainly (1) to the region between the Rio Heath and the upper Beni, including the course of the Rio Madidi, and (2) to the region about the Rio Paragua, a left affluent of the upper Guaporé. No relief is shown.]

Peru–Ecuador. Reiseweg in Peru und Ecuador 1909. Von Wilhelm Sievers. 1:500,000. 3 colors. [In 4 sheets:] Blatt I: 8°30′ - 10°53′ S.; 78°27′ - 76°12′ W. Blatt II: 6°25′ - 8°30′ S.; 79°51′ - 77°18′ W. With inset: Übersicht der Reisewege von Peru und Ecuador, 1909. Von Wilhelm Sievers. 1:7,500,000. 1° - 13° S.; 85° - 71° W. 4 colors. Blatt III: 3°52′ - 5°24′ S.; 81°13′ - 79°7′ W. Blatt IV: 2°0′ - 3°52′ S.; 79°49′ - 78°30′ W. Accompany respectively as Taf. 20 (March number), 24 (April), 25 and 26 (May), "Bemerkungen zur Karte meiner Reisewege in Peru und Ekuador" by W. Sievers, *Petermanns Mitt.*, Vol. 61, I, 1915, March, pp. 104-106.

[Route surveys in the Andes whose value lies in their furnishing additional material for a region of which the large-scale maps are still very inadequate (for Raimondi's standard map of Peru on the same scale, in spite of its excellence, is still susceptible of great improvement and expansion). The surveys consists of two sections, one leading northwestward from the neighborhood of Cerro de Pasco down the longitudinal valley of the Rio de Santa, with numerous side excursions, both inland and to the coast, and via the Marañon in 8¼° and Cajamarca to the sea at Chiclayo; the other from Payta via Loja and Cuenca to Alansi on the Guayaquil railroad. Drainage is in blue, relief in brown shading, and the author's route in red.]

AFRICA

Portuguese East Africa. (a) Portuguese East Africa between the Zambezi and the Sabi Rivers by E. O. Thiele, M.Sc., F.R.G.S. [and R. C. Wilson, B.Sc., F.R.G.S.]. 1:2,000,000. 16° - 22° S.; 32° - 37° E. 3 colors.

(b) Portuguese East Africa between the Zambezi and Sabi Rivers. By E. O. Thiele, M.Sc. 1:4,000,000. 16° - 22° S.; 32⅓° - 36⅔° E. [Three maps:] (1) Orographical map. (2) Tectonic Map. (3) Geological Map.

(c) Tectonic Map of Eastern Central Africa by E. O. Thiele, M.Sc. 1:10,000,000. 9° -24° S.; 26° - 36½° E.

Accompany: map (a) facing p. 96, maps under (b) on pp. 20, 28 and 29, and map (c) on p. 21, "Portuguese East Africa between the Zambezi River and the Sabi River: A Consideration of the Relation of Its Tectonic and Physiographic Features" by E. O. Thiele and R. C. Wilson, *Geogr. Journ.*, Vol. 45, 1915, No. 1, pp. 16-45.

[Map (a) is a general map showing the topography of the country, compiled from Mr. Thiele's compass traverses and existing maps: drainage in blue, relief in brown shading, author's routes in red. Maps under (b) are black-and-white sketch maps, (1) distinguishing six altitude layers and (3), twelve geological formations. On (b2) and (c) the broader structural lines are shown.]

ASIA

Mongolia–Manchuria. Routes through Barga and North East Mongolia followed by Lieut. G. C. Binsteed (Essex Reg't.), 1912-13. 1:1,000,000. 2

colors. [In 3 sections:] I: 49°25′ - 48°15′ N.; 115°25′ - 120°0′ E. II: 48°15′ - 47°25′ N.; 111°30′ - 116°5′ E. III: 50°30′ - 47°15′ N.; 105°55′ - 112°0′ E. With inset, 1:10,000,000, showing location and arrangement of sections of main map. Accompanies, in Vol. 45, 1915, No. 2, "Some Topographical Notes on a Journey through Barga and North-East Mongolia" by G. C. Binsteed, *Geogr. Journ.*, Vol. 44, 1914, No. 6, pp. 571-577.

[Valuable route survey leading from Khailar on the Manchurian railway west mainly along the Kerulen River to Urga and thence north to Kiakhta on the Mongolian-Siberian frontier. Drainage in blue, relief in brown shading, author's route in black. The section from Urga to Kiakhta is mainly based on Molchanoff's explorations published in Vol. 14, 1911, of the *Journ. of the Kiakhta Branch of the Imp. Russ. Geogr. Soc.*]

AUSTRALASIA AND OCEANIA

German New Guinea. Das Stromgebiet des Kaiserin-Augusta-Flusses. Hauptsächlich nach den Aufnahmen von Leonh. Schultze Jena (Grenzexpedition 1910/11), Walt. Behrmann und Rich. Thurnwald (Exped. n.d. Kais. Aug. Fl. 1912/13) zusammengestellt von M. Moisel. 1:1,500,000. 2°20′ - 6°0′ S.; 140°46′ - 144°45′ E. 4 colors. Accompanies, as Karte 2, "Vom mittleren Sepik zur Nordwestküste von Kaiser-Wilhelmsland" by [R.] Thurnwald, *Mitt. aus den Deutschen Schutzgeb.*, Vol. 27, 1914, No. 1, pp. 81-84.

[While showing the route of Dr. Thurnwald's latest expedition, the map constitutes a general summary of our present knowledge of the western half of Kaiser Wilhelmsland, as which it is especially helpful. Relief in approximate contours in brown; drainage in blue.]

German New Guinea. Skizze zu der Forschungsreise Dr. Thurnwald's im oberen Sepikgebiet. [1:570,000.] [3°45′ - 4°35′ S.; 140°45′ - 142°0′ E.] Accompanies, on p. 341, "Entdeckungen im Becken des oberen Sepik" by [R.] Thurnwald, *Mitt. aus den Deutschen Schutzgeb.*, Vol. 27, 1914, No. 3, pp. 338-348.

[Embodies the results of new explorations, mainly referring to tributaries, both right and left, of the upper Kaiserin Augusta River. In this respect this black-and-white map is more complete than the previously issued maps covering the same region, viz., the map in 1:1,500,000 listed immediately above and maps (a) and (bII) listed under "German and Dutch New Guinea" in the *Bull.*, Vol. 46, 1914, pp. 957-958.]

EUROPE

Baltic Sea. Die Ostsee als germanisches Meer. Entworfen von Paul Langhans. 1:5,000,000. 66⅓° - 52° N.; 4° - 32° E. 6 colors. Accompanies paper with same title by G. Wegemann, *Petermanns Mitt.*, Vol. 61, I, 1915, March, pp. 89-91.

[The map differentiates between areas of Teutonic and of Slavic civilization. These elements are used to characterize each: speech, creed and alphabet. Creed is considered a more important element than speech: accordingly the non-Teutonic Finns, Esthonians, Letts and Mazurians, because of their Protestant faith, are colored light pink to resemble the pink used for Scandinavians and Germans. Thus the whole Baltic basin appears as an area of Teutonic "Kultur". The five symbols of the legend distinguish between areas (1) of Teutonic speech and Protestant faith; (2) of Teutonic speech and Catholic faith; (3) of non-Teutonic speech and Protestant faith; (4) of Slavic speech and Catholic faith; and (5) of Slavic speech and Greek-Orthodox faith. The grouping according to alphabet indicates the use of Gothic characters in areas (1), (2) and (3), of Latin characters in area (4) and of Cyrillic characters in area (5). The map has already been published in the *Deutsche Erde*, 1902.]

POLAR

Spitsbergen. Spitsbergen by Captain Gunnar Isachsen, R.N.A. 1:1,500,000. 80°50′ - 76°30′ N.; 10° - 31½° E. 2 colors. With two insets: (1) Bear

Island. [1:1,500,000.] [74½° N. and 19° E.] 2 colors. (2) [Norwegian Sea and surrounding lands.] 1: 35,000,000. 90° - 57° N.; 70° W.-70° E. 2 colors. Accompanies "Spitsbergen: Notes to Accompany Map" by G. Isachsen, *Geogr. Journ.*, Vol. 45, 1915, No. 3, pp. 237-242.

[The main merit of this map is its copious nomenclature, in the selection of which care has evidently been exercised to retain the original versions. No topography—relief or glaciers—is shown, and in this respect the map is not as valuable as the one on the scale of 1:1,000,000 published in *Petermanns Mitteilungen* and reviewed under "Spitzbergen (a)" in the *Bull.*, Vol. 46, 1914, p. 78. Indeed, Wegener's surveys in the region of Wood Fiord, there published, have not been utilized.]

WORLD AND LARGER PARTS

Russian Empire. Carte hypsométrique de l'Empire Russe: Essai de représentation du relief de l'Empire par J. de Schokalsky. 1:12,600,000. 86° - 30°N.; 10° E. - 165° W. 15 colors. Published by the Colonization Bureau of the Dept. of Agricultural Organization and Agriculture, St. Petersburg. Engraved by the Cartographical Establishment of A. F. Marks. Gift from Gen. J. de Schokalsky.

[Geographical investigations dealing with the whole of the Russian Empire are important by the very fact of the enormous extent of territory they cover —one-seventh of the land-surface of the earth. Such is the case with the fundamental *Atlas Climatologique de l'Empire de Russie* (Observatoire physique central Nicolas, 1900) in the field of climatology; in that of hypsometry, the present map is a welcome undertaking. While necessarily not so detailed as von Tillo's corresponding map of European Russia south of 61° N. on the scale of 1:2,520,000 (Dept. of Public Highroads, St. Petersburg, 1889), it is still on a relatively large scale when the size of the area is considered. On the south the map includes the northern border of the Iran highland, the Kuenlun Mts., and the Shantung peninsula; on the west, north and east it is, of course, in keeping with the confines of the empire, bounded respectively by the Baltic Sea and the Arctic and Pacific Oceans. Ten hypsomteric and five bathymetric tints are used to express relief (the color scheme of the former ranging in the usual way from green to brown, of the latter from light to dark blue), as follows: land below sea level, 0-200, 200-500, 500-1000, 1000-1500, 1500-2000, 2000-3000, 3000-4000, 4000-6000 meters, and above 6000 meters; water depths of 0-100, 100-200, 200-1000, 1000-2000 meters, and below 2000 meters. The names on the map are in Russian: those of the towns in the Siberian railroad belt are possibly too copious for a physical map, as they mask the relief to a certain extent.

While the fiction of the continuity of the Yablonoi and Stanovoi Mountains in eastern Siberia, which still haunts many of our reference books (e. g., the *Century Dictionary of Names*), has not been perpetuated and the Olekma depression is correctly shown to separate the two, it is rather surprising to see on an official map the mountain-chain character of the Stanovoi Mountains maintained, when Kropotkin (Orography of Asia, *Geogr. Journ.*, Vol. 23, 1904). Aïtoff (*Internatl. Geogr.*, edit. by H. R. Mill), and others have demonstrated the scarp nature of this divide. The nomenclature of this relief feature is, on the other hand, not treated in orthodox fashion. Instead of designating the whole divide from the Olenka to Bering Strait as the Stanovoi Mts., it divides it into four sections; the first, from the Olenka to Uda Bay, is left nameless; the second, forming the western border of the Sea of Okhotsk, is termed Jugjur Mts.; the third, forming the arc convex to the south on the northern side of the Sea of Okhotsk, is called the Kolyma Mts.; and the fourth, the arc convex to the north and forming its continuation to Bering Strait, is designated Anadyr Mts.

Otherwise the map is a very serviceable representation of the relief of the Empire. The best previous map of this nature known to the writer is the admirable physical map of Eurasia, 1:25,000,000, constituting Pl. 43 of the *Atlas Universel de Géographie.* Owing to its being on only half the scale and also because of its smaller range of hypsometric tints (which, however, are ably

supplemented by hachuring), it cannot present as comprehensive a picture as the present map.]

World. Die Beziehungen Japans zum Auslande. Entworfen von Paul Langhans. [Mercator's projection, equatorial scale 1:100,000,000.] 80° N.-60° S.; 30° W.-30° W. 10 colors. Accompanies, as Taf. 27, "Die japanische Auswanderung" (first part) by E. Schultze, *Petermanns Mitt.*, Vol. 61, I, 1915, April, pp. 129-133.

[Symbols for the following: German colonies occupied by Japan; Japanese sphere of influence in Manchuria; countries restricting Japanese immigration; allies of Japan in the European war; routes of Japanese immigration (with indication of intensity); Japanese steamship lines; cities having large Japanese populations; seats of Japanese embassies and consulates; countries having diplomatic representatives in Japan; cities publishing Japanese newspapers.]

Other Maps Received

NORTH AMERICA

United States

Alaska. Map of Alaska. 1:1,500,000. U. S. Geological Survey, Washington, D. C., 1915.

Colorado. Geologic map and sections of North Park, Col., by A. L. Beekly. 1:125,000. Accompanies as Pl. XII, "Geology and Coal Resources of North Park, Col.," by A. L. Beekly, *U. S. Geological Survey Bull. 596*, Washington, 1915.

Canada

British Columbia. Diagram showing the geology of Texada Island, B. C. 1:126,720. Geological Survey, [Ottawa], 1912.

Manitoba. Manitoba, showing disposition of lands. 13th edition. Corrected to Jan. 1st, 1915. 1:792,000. Railway Lands Branch, Department of the Interior, [Ottawa], 1915.

Nova Scotia. Map 121A, Franey Mine and vicinity, Victoria county, N. S. 1:18,000. [Geological Survey of Canada, Ottawa], 1914.

Map 118A, Pleasant River Barrens Gold District, Lunenburg County, Nova Scotia. 1:6,000. Geological Survey, [Ottawa], 1914.

Quebec. Map 134A, Part of the Province of Quebec. 1:2,217,000. Geological Survey [of Canada], Ottawa, 1914.

Cap Levrard to Ste. Emmélie, River St. Lawrence, Canada. 1:12,000. Department of the Naval Service of Canada, Ottawa, 1915.

AFRICA

Eritrea. Carta schematica delle linee telegrafiche e telefoniche della Colonia Eritrea. 1:1,500,000. Ministero delle Colonie, [Rome], 1914.

Libya. Carta dimostrativa della Tripolitania. 1:1,500,000. Istituto Geografico Militare, [Florence], 1911.

Carta dimostrativa della Cirenaica. 1:600,000. Istituto Geografico Militare, [Florence], 1911.

Tripolitania: zona littoranea da Zavia ad Argub. 1:50,000. Istituto Geografico Militare, [Florence], 1911.

Tripolitania: servizio telegrafico e radiotelegrafico. 1:1,500,000. Ministero delle Colonie, [Rome], 1914.

Morocco. Carte de reconnaissance du Maroc. 1:100,000. Sheets: VII, Bou Selham; XIV, Meknès; XIII, Rabat. Service Géographique de l'Armée, [Paris], 1912.

[The same map as above on the scale of 1:200,000.]

Région du Haut-Guir [in 3 sheets]. 1:100,000. Sheets: Bou Denib, Aïne Chaïr, Kenadsa. Service Géographique de l'Armée, [Paris, 1909].

Tunis. Carte de la Tunisie. 1:800,000. Service Géographique de l'Armée, [Paris], 1895.

ASIA

China. Théâtre des opérations en Chine [en 4 feuilles]. [2 sheets received.] (1) Environs de Pékin. 1:300,000. Inset: Pékin. 1:50,000. (2) Plan de Pékin, 1:15,000. Service Géographique de l'Armée, [Paris], 1900-1902.

India. Nepál, with part of Tibet. 1:1,013,760. Survey of India, [Calcutta], 1907.

India and adjacent countries. 1:1,000,000. Sheets: 57 (1913), 61 (1912), and 92 (1911). Survey of India, Calcutta.

EUROPE

Denmark. Randers-Fjord, Kattegat. 1:30,000. Inset: Randers, 1:5,000. Kongelige Sökort-Arkiv, Köbenhavn, 1914.

Ostersöen mellem Falsterbo og Christiansö. 1:160,000. Insets: Rönne, 1:8,000; Christiansö, 1:6,000; Nexö, 1:6,000. Kongelige Sökort-Arkiv, Köbenhavn, 1914.

Limfjorden Hals til Aalborg. 1:30,000. Inset: Aalborg of Nörre-Sundby, 1:10,000. [Chart] Nr. 271. Kongelige Sökort-Arkiv, Köbenhavn, 1914.

Mariager-Fjord, Kattegat. 1:30,000. Insets: Hobro, 1:6,000; Mariager, 1:2,000; Cementfabrikkerne Cimbria, Dania og Kongsdal, 1:6,000. [Chart] Nr. 272. Kongelige Sökort-Arkiv, Köbenhavn, 1914.

Germany. Geologische Karte der Allgäuer und Lechtaler-Alpen, westliche Hälfte. Nach den Aufnahmen von G. Schulze, H. Pontoppidan und eigenen, herausgegeben von C. A. Haniel. 1:25,000. Piloty u. Loehle, München, [1914?].

Greece. Ile de Crète, 1:400,000. Service Géographique de l'Armée, [Paris, 1899].

Iceland. Islands vestkyst, Breidifjördr öst for Flatey Indsejling til Skardstöd, Saltholmavik og Kroksfjardarnes. 1:70,000. Inset: Indsejlingen til Skardstöd, 1:30,000. [Chart] Nr. 275. Kongelige Sökort-Arkiv, Köbenhavn, 1915.

Italy. Italy [showing Waldensian churches]. [Approximate scale 1:4,500,000.] American Waldensian Aid Society, New York, [1915].

Spain. [Province of] Leon. 1:550,000. Alberto Martin, Editor, Barcelona, [1915].

Plano de la Coruña, revisado por el Ayuntamiento. 1:10,000. Alberto Martin, Editor, Barcelona, [1915].

Plano de Lugo, revisado por el Ayuntamiento. 1:3,900. Alberto Martin, Editor, Barcelona, [1915].

Plano de Lérida, revisado por el Ayuntamiento. 1:5,000. Alberto Martin, Editor, Barcelona, [1915].

Turkey. Map of the Dardanelles, Sea of Marmora and Bosporus. 1:443,520. G. W. Bacon & Co., Ltd., London, [1915].

POLAR

Arctic and Antarctic. Currents in the Arctic and Antarctic Oceans, with attention to water temperatures, color and formation of ice, and other physical conditions. By Lieut. John C. Soley, U.S.N. [Approximate scale 1:23,000,000]. Branch Hydrographic Office, New Orleans, La., [1915?].